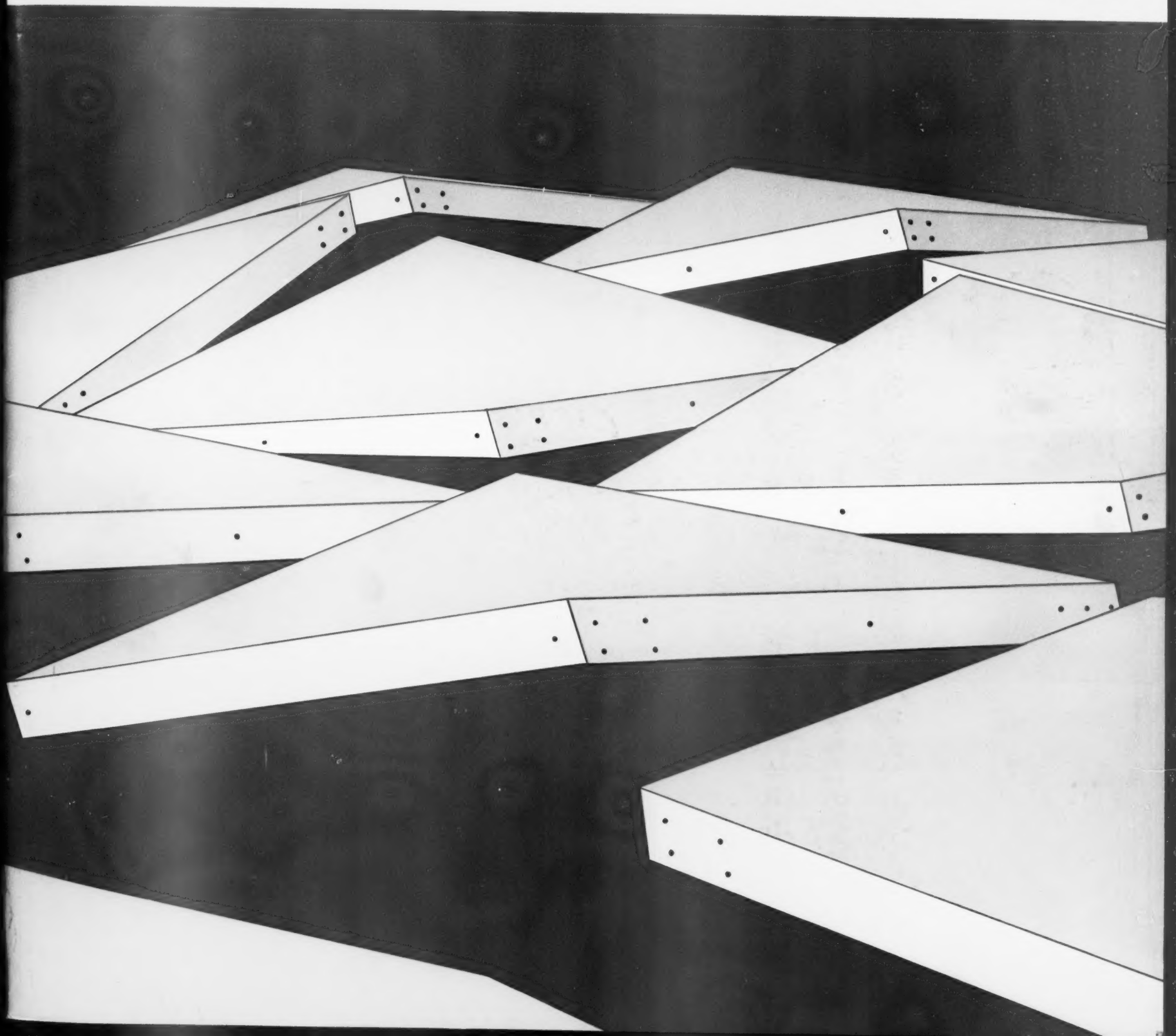
architectural & engineering

NEWS

JULY 1961 VOLUME 3 NUMBER 7



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Cover design by Tony Palladino reflects one of the many forms into which plastics can be shaped. Drawing is based on an MIT photograph showing hyperbolic paraboloid elements of a prefabricated plastic schoolhouse. Construction phases of this schoolhouse are described on page 16. A special review of reinforced plastics appears on page 13.

←Circle 100 for further information

7

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13 **Reinforced plastics in building: some questions and answers**

16 **The schoolhouse: plastics and prefabrication**

2 **Gazette**

4 **Forecast: plastics and the building codes**

6 **A/E news**

18 **Associations: BRI and CSI**

23 **Products, equipment and materials**

39 **Preview 32: Yamasaki's Michigan Consolidated Gas Company building**

41 **Literature**

53 **Digest 31: rigid urethane foams**

55 **Documents**

56 **Books**

57 **Names: Wayne F. Koppes AIA**

58 **Abstracts**

59 **Editorial**

60 **Ad index**

61 **Calendar**

Reader service cards facing pages 1 and 60

GAZETTE

Adolph R. Scrimenti AIA was recently elected president of the New Jersey Society of Architects at their 61st Annual Convention.

Charles P. Weisz has been appointed Structural Engineer for the Wire Reinforcement Institute of Washington, D. C. Prior to his appointment, Weisz was with Hazelet & Erdal, engineering firm of Cincinnati, Ohio.

Newly elected officials of the Building Research Institute are: Leon Chatelain Jr. FAIA president and chairman of the executive committee; Peter B. Gordon, vice president and vice chairman of the executive committee, Graham J. Morgan, second vice president and Harold D. Hauf AIA third vice president. Terms run for one year.

Richard Charles Lee, Mayor of New Haven, Connecticut was recently awarded an honorary Master of Arts degree from Yale University for his work in the urban renewal of New Haven. (See A/E NEWS, April 1961, PREVIEW: 29).

Richard F. Humphreys, vice president of the Illinois Institute of Technology, has been selected president of the Cooper Union for the Advancement of Science and Art in New York City.

Rolf Eliassen has been appointed professor of civil engineering at Stamford University. Mr. Eliassen was formerly acting head of MIT's Department of civil and sanitary engineering.

The National Society of Professional Engineers' Award for 1961 will be awarded to Leif J. Sverdrup, PE, at the July Annual Meeting in Seattle.

Bradford N. Clark was re-elected as president of the New York Building Congress recently.

The Producers' Council, Inc. recently elected officers for 1961-1962 as follows: Henry Weisl, president, Robert Findlay, executive vice president, Don Borell, vice president in charge of programming, John Hamilton, secretary and Shelden Jones, treasurer.

Glenn P. Bakken was reelected president of the Copper & Brass Research Association at its recent 39th Annual Meeting. Senior vice president E. P. Dunlaevy was also reelected.

Charles M. White, honorary chairman of Republic Steel Corporation, was awarded the Gary Memorial Medal—the highest honor of the American Iron and Steel Institute —at the banquet session of the Institute's 69th General Meeting in New York on May 25th.

Guy Panero, president of Guy B. Panero, engineers of Washington and New York, died recently. He was 69 years old.

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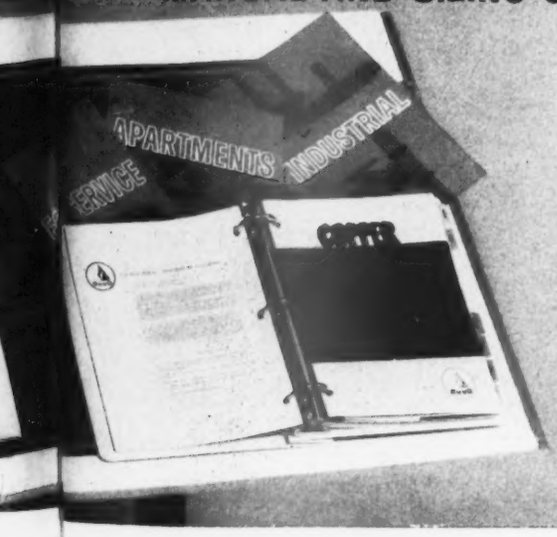

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The Association of Collegiate Schools of Architecture at their recent annual convention in Philadelphia elected Olindo Grossi FAIA, dean of the Pratt Institute School of Architecture, as president of the Association. Dean Grossi had previously served two years on the board of directors.

OFFICE ANNOUNCEMENTS

Six Minneapolis engineering firms, representing specialization in each major branch of the profession, have joined to form the Alpha Engineering Company, with offices at 350 Builders Exchange Building. Firms comprising the new organization are: Jacus & Amble; Bruch & Murrow, Inc.; J. B. Clava Co.; David R. Conkey & Associates; Lindsey Engineering Co.; and Austin McInerny, engineer.

Leo Kornblath AIA has formed the firm of Leo Kornblath Associates at 18 East 41st Street, New York City. Kornblath was formerly with Morris Lapidus, Kornblath, Harle & Liebman of that city.

R. E. Johnson, architect, announces removal of his office to 11260 Southwest Highway, Palos Hills, Ill.

Harry B. Rutkins AIA has been appointed an associate of the firm of Eggers and Higgins, architects, of New York City.

Charles Luckman Associates, Inc., of Los Angeles announce the appointment of Harold D. Hauf AIA as vice president for design and planning. Hauf was formerly Dean of the School of Architecture, Rensselaer Polytechnic Institute.

Earnest M. Fuller AIA vice president of Johns-Manville Corp., has been appointed Manager of the new Architectural Sales Department with offices at company headquarters in New York City.

Civil engineer Nick Harrison and land planner Leonard Gerkin have been elected corporate officers of Engineering Service Corporation of Los Angeles, California.

Edward J. Parnum AIA announces removal of his office to 121 North Broad Street, Philadelphia 7, Pa.

Thonis, Harrison & Wolfe have moved their architectural offices to 3850 West Santa Barbara Avenue, Suite 215, Los Angeles 8, California.

John S. Burrows, Jr. AIA has withdrawn as a member of Urbahn, Brayton & Burrows, architects, New York City. The firm will continue under the name of Urbahn, Brayton & Associates.

T A B Engineers, Inc. have moved their offices to 520 North Michigan Avenue, Chicago 11, Illinois.

John M. Clancy has become a partner in the firm of Hamilton & Goody, architects, of Cambridge, Mass. Firm name is unchanged.

FORECAST

PLASTICS AND BUILDING CODES

by Frank X. Ambrose

A new material is looked upon skeptically by building officials until such time as it has proved itself in the realm of safety. Plastics are no exception. In the following paper we are able to trace the progress and prospects of plastics in relation to building codes through the activities of the Building Codes Advisory Committee of the Society of the Plastics Industry, of which the author is a member. Mr. Ambrose, vice president of the Alsynite Division of Reichhold Chemicals, Inc., delivered this paper at a recent meeting of the Building Research Institute in Washington.

The Building Code Advisory Committee was organized six years ago at a time when several distinctly different segments of the industry found that as they reached larger and larger markets in the building construction field, they were beginning to run up against code barriers. As long as plastics in building construction was an experimental or developmental matter, as long as the total amount of plastics volume going into the building field was insignificant, and as long as plastic products for building use had no particular product identity, their occasional appearance on building plans raised few serious questions.

However, when building officials began to find that plastic installations were frequently becoming an important architectural or functional part of the design of buildings, and when the use of plastic glazing or skylighting was becoming common in metal buildings, they began to ask under what provisions of the building codes the new materials were being offered. Then, understandably, the wide range of plastics presented a confused picture and the average building inspector or department head found himself unable or unwilling to judge the merits of any particular product. There was no coordinated reference data which might guide the industry and the building official in the problem of what plastics and how much should go into various types of buildings in this location or that location, and so industry found itself faced with the easiest solution to the building department's problem, namely, refusal to approve or allow the installation.

There were many cases where a manufacturer of one plastic would obtain approval of his product in a city or area, and then a manufacturer of a totally different type of plastic would come to the same city for approval of his product. The second product was possibly approved also, even though the physical characteristics and performance behavior of this product were different from the first. However, the arrival of a third or fourth manufacturer in the city (seeking perhaps another use of plastic materials, or perhaps only offering a product competitive to one of the other two) would throw the building department into a turmoil.

The first steps

In 1955, the Society of the Plastics Industry found that the number and nature of the problems which the Industry faced before building departments around the country, and the number of products and companies involved, were so large as to require a special discussion session and organizational meeting to take concrete steps to overcome any immediate problems, and develop a program aimed at obtaining fair building code legislation for plastic materials. As a result of deliberations at this meeting, the present Code Advisory Committee was organized.

The first task that faced the Committee was to learn the exact nature of the problems facing the Industry, and also to develop a basic working policy for bringing about the necessary and fair recognition of plastic materials as materials of construction under the nation's building codes. As a result of information at SPI headquarters, and that supplied at the organizational meeting, we had a pretty fair idea of where our most important immediate problems lay. We then had to canvass manufacturers to learn of the applications for which their products were suited, and which they could support by technical data, fire test reports, and rational engineering analysis. The Committee spent a great deal of time studying the country's major codes, and talking to building officials representing major population areas or regions.

At this stage in our development, one of the obstacles was that, with the one important exception of the Basic Code, the nation's principal building codes did not mention plastics, and hence there was no standard procedure for the acceptance, review, or approval, of plastic materials as materials of construction. After talking to numerous building officials around the country, it became quite clear to us that it would be necessary to treat with plastics in a separate chapter wherever building codes were involved; this is the same procedure as is followed for other materials such as wood, steel, concrete, masonry, etc.

Policy document

By August of 1956, after many meetings, much study and data-gathering, the Committee felt that it had been able to formulate a policy which reconciled the public safety and welfare responsibilities of the building officials, in their codes, with the rights and desires of manufacturers of plastic materials for building. This policy was set forth in a booklet entitled *A Model Chapter On Plastics For Inclusion In A Building Code*, developed in collaboration with the Plastics in Building Committee of the Manufacturing Chemists' Association. It had been circulated for review to over one thousand company-members of the Industry before release. This document met the requirements of the building officials as we then knew them, condensed a broad range of hundreds of prospective plastic building materials to a small group of three or four readily identifiable classes, and offered very conservative uses of plastics in places which were at that time important to us.

Progress and education

During the first year of our activities, we negotiated for improved plastics provisions in the *National Building Code*, the *Uniform Building Code*, the *Southern Building Code*, the *San Francisco Building Code*, and codes being drafted by *New York State* and *Ohio State*. In working with building officials, we found that our most important step was education, and we had to demonstrate that it would be possible to separate plastics suitable for use in building construction from those completely unsuitable, by means of a few simple qualifying tests. We also had to demonstrate that there was a method of classifying the many scores of different materials into a few simple types which could be treated as units in the code regulations.

Basically, we used as our initial screening test the ASTM flammability test which had been used for many years by Underwriters' Laboratories in screening plastics for use in electric signs—this test separates highly flammable materials from ordinary slow-burning or self-extinguishing plastics. The classification system used in connection with related allowable areas and locations, was based on setting up classes for *1* self-extinguishing materials, and *2* non-self-extinguishing materials. The non-self-extinguishing or standard materials were further subdivided into those reinforced with glass-fiber, and those which are not reinforced. Insofar as plastics are concerned, all code authorities have tended heavily to regulate their use based on fire-hazard and burning characteristics. The classification system which we adopted reflects several distinctly different types of behavior under fire conditions.

Testing

From the outset we faced several problems. In the first place, there was the technical difficulty that while building officials wanted to govern each use of plastics by means of some established standard fire test value, there were no standard test or evaluation techniques for many of our plastic applications. An ASTM test referred to as the Tunnel Test, was referred to in almost all building codes, but it was developed and intended specifically for use in connection with interior finish materials. It is an excellent test for this and related applications. However, in certain sections of the country, notably the West Coast, there have been attempts to extend the meaning and application of the Tunnel Test, to make it a criteria for all uses of plastics regardless of what they might be. As a result, today we find ourselves faced with code sections wherein the Tunnel Test is used to qualify materials for exterior veneer, awnings, skylights, and other applications totally unrelated to the nature of the test method.

In addition to the foregoing problems, we were surprised to become aware of the fact that we had opposition from other industries who might feel that we offered a competitive threat. For example, in November of 1957, the American Iron and Steel Institute circulated among building officials and fire services, a lengthy document attacking the Model Chapter, and in effect charging us with irresponsible and reckless activities in the building code field.

Excessive restrictions

One of the unfortunate results of this unusual type of opposition activity is that we now have in the Uniform Building Code a requirement that plastics used in skylights in metal buildings shall be of a self-extinguishing type. Use of corrugated plastic panels as skylights or sidewall lighting in metal buildings is a universal practice among metal building manufacturers since it provides an economical

and efficient means of introducing light into the structure. Many years of installation experience and extensive testing at Factory Mutual Laboratories and elsewhere have amply demonstrated the fire safety of installations of standard type plastic panels. Even the most conservative fire authorities recognize that the limited areas of plastics used in skylighting or sidewall lighting of metal buildings introduce no hazard, and further in a number of cases where fire has occurred inside such buildings, the fact that the plastic skylights have burned out and vented the fire, has actually saved buildings from total destruction.

In spite of these well established facts, however, we have the arbitrary restriction to self-extinguishing plastics in metal buildings, under the Uniform Building Code. I am certain that today, even the steel industry and the Metal Building Manufacturers would disagree with this.

Over the past several years, the plastics industry has tried to meet these problems by devoting its efforts towards developing test information and data to prove beyond doubt the reasonable nature and technical soundness of its recommendations. We have met assiduously with the foremost insurance organizations and fire services, we have sought and followed the advice of fire testing authorities, we have run large-scale tests and small-scale tests, and we have in many instances cooperated with governmental groups in arranging for the installation of plastic materials in actual test programs. For example, in New York, we installed half a dozen different types of plastic glazing in a test school building; in Los Angeles, we installed materials in a building which was to be used for large-scale fire tests run by the city fire department, as a National Fire Prevention Association project. Today, we feel that the legitimate use of plastics in building construction is well justified and warranted by testing, experience, and technical data.

Accomplishments

Generally speaking, our efforts have met with success and we can say that with only a few exceptions plastics are being given reasonable treatment under the country's major codes. The three most important regional codes, the Basic Building Code, the Southern Building Code, and the Uniform Building Code all have chapters on plastics and provide a means for the submission of data and approval of materials. At the state level, both Ohio and New York have all developed codes, with provisions for plastics, and the State of California is moving in this direction also. At the city level, among those cities which do not use one of the major regional codes, New York, Washington, Detroit, San Francisco, Seattle, Cincinnati, Akron, and others, have given special attention to plastics.

Although we have made substantial progress in the past five or six years, there is still a great deal more work to be done in this field. It is obvious that we must redouble our educational efforts with respect to regulatory authorities, and we are also well aware of the fact that we must educate people within our own industry with regard to what they can reasonably expect regarding use of their products in building construction.

New plastics applications

The bulk of present-day building code provisions covering plastics concern themselves with individual building panels used for light transmitting purposes. At the time that most of these code provisions were initiated, this particular end-use of plastics was the one encountering the most difficulty in the face of outmoded codes, and, aside from interior finish it was the predominant end-use of plastics. There are coming into use new types of construction incorporating plastic materials with other building units, and we know that before long we will have to give serious attention to making proper allowance for them in our building codes. Core panels with plastic facings are one class of product to which we will have to give attention. These panels may be either translucent or opaque, and they may be constructed of a variety of cores (for example, aluminum grid sections, or foamed or expanded plastic) and they have wide potential use in modular unit construction and curtain walls. In addition, plastic veneers are becoming fairly common.

Fire safety

In obtaining reasonable provisions for such new types of construction under our building codes, we know that we will find great emphasis placed on fire safety. One of our problems is that there are actually no generally accepted fire tests which can be used to evaluate properly many of these applications. To put the new products on a solid footing in our building codes, we know that it is going to be necessary to develop a background of testing experience which will provide a basis for evaluation, or at least provide the facts necessary for negotiating new rules with building officials. To encourage and suggest this type of activity within the plastics industry is one of the most important future activities of the Code Advisory Committee. To building officials and all regulatory authorities involved in the writing of building codes, we will continue to offer our wholehearted cooperation in drafting technically sound and reasonable provisions for plastic materials.

We know that the great flexibility of design afforded by plastic or synthetic materials destines them for an important place in the construction field. We know that progress is inevitable. It is the concern and objective of all of us to keep progress in building construction and progress in the nation's building codes in step with each other.

NEXT MONTH

August A/E NEWS will feature a special article by the well-known structural engineer Fred Severud on the subject of post-tensioned, prestressed construction using masonry units. In addition, there will be a discussion of the new technique of faceted glass construction, as well as a technical article on heat and light transmission characteristics of the new gray-tinted glasses. Results of a special survey dealing with modular clay masonry products will complete the editorial picture.

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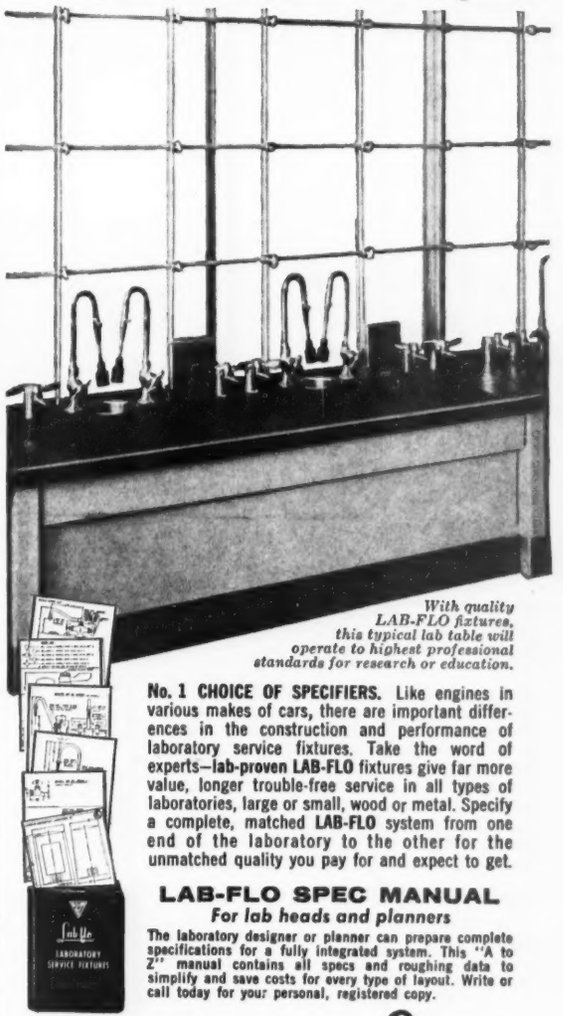

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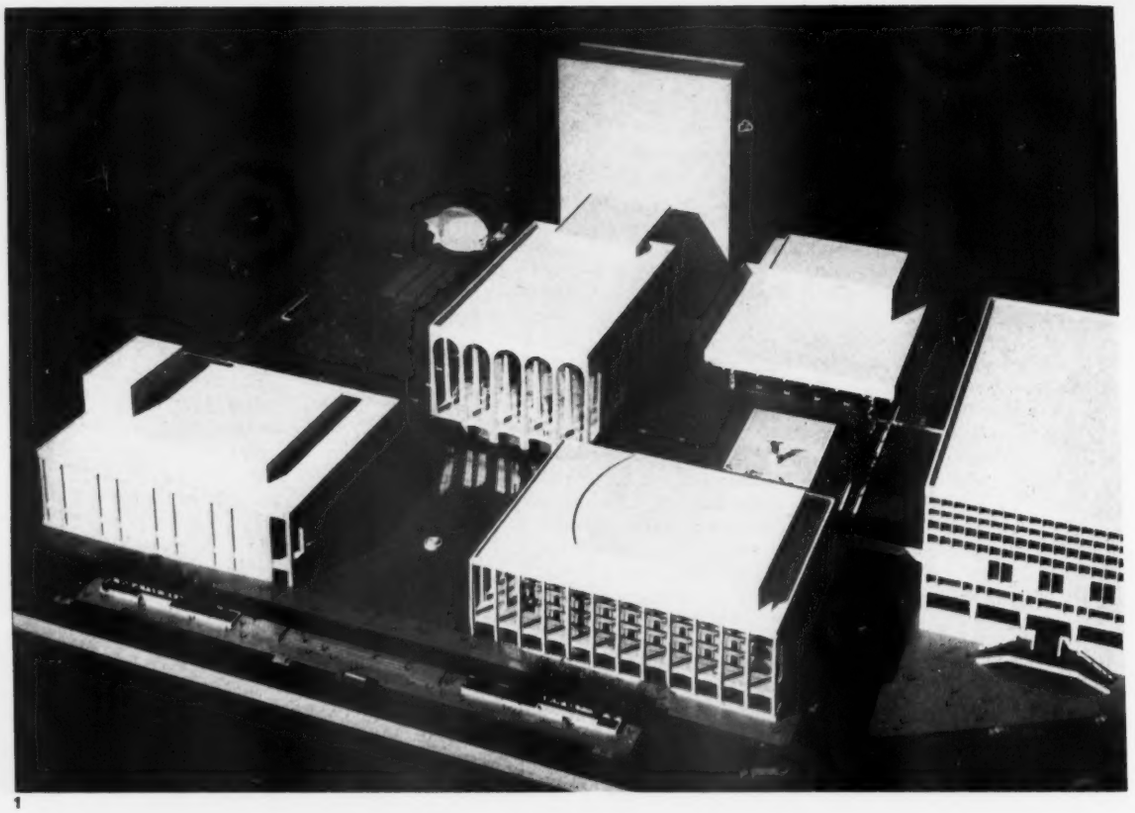

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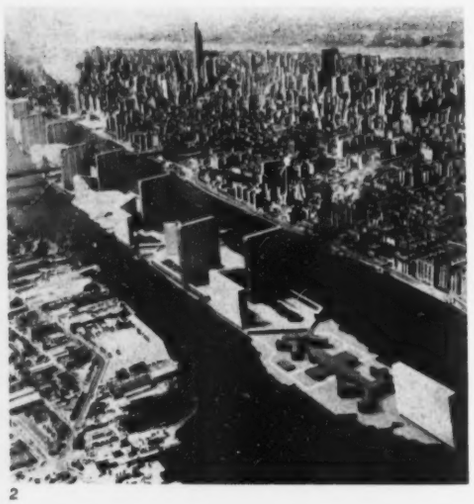

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1. New model for Lincoln Square Center for the Performing Arts shows for the first time exterior of Repertory Theater (to right of Metropolitan Opera tower), Juilliard School (right) and revised exterior of the New York State Theater (left). Architects for these three buildings are respectively: Eero Saarinen and Associates (Jo Mielziner, Collaborating Designer); Pietro Belluschi, with Catalano and Westermann; Philip Johnson Associates. (Photo by Ezra Stoller Associates.)

2. Welfare Island, New York, as it will look if $450 million plan to convert this 167-acre island in the East River to a 70,000 inhabitant community is approved. To be known as East Island, the project was prepared by Victor Gruen Associates. Concept includes construction of a concrete platform 22' above ground. Under this platform are located service and public facilities, including schools, public libraries, stores, theaters, professional and municipal offices.

3. Photo of perspective showing new Chase Manhattan bank being built at Great Neck Plaza, Long Island. Architects are The Architects Collaborative, Benjamin Thompson, partner in charge. The bank will have drive-in teller service. (Rendering by Jacoby.)

Specialized degree

Columbia University's School of Architecture is offering a course in medical facility planning leading to a degree of Master of Science in Architecture, beginning in the Fall. Charles R. Colbert AIA, dean of the School of Architecture, announced that Professor Richard A. Miller AIA has been named Director of the program which will be run in coordination with Dean Colbert and Dr. Ray E. Trussell, Commissioner of New York City's Hospitals.

The course will cover one academic year, of which about one-third will be spent in Columbia's School of Public Health and Administrative Medicine for field studies. Dean Colbert commented that Columbia expects to limit enrollment to "ten outstanding and dedicated young students."

House hearings

Philip Will, Jr. FAIA, president of AIA, recently appeared before the House Committee on Government Operations to place the Institute on record in favor of establishment of a Department of Urban Affairs within the Cabinet.

President Will pointed out the various reasons a Department of Urban Affairs was needed to help bring about "better urban design and urban building throughout the country." He further pointed out the "waste inherent in the thousands of conflicting local building codes."

AIA appointment

William Perreault, assistant professor of architecture at Cornell University, has been appointed Head of the AIA Department of Education, Division of Member Services, effective July 1. Duties of the new education head will include liaison as official representative of the AIA with external educational groups and institutions, and with professional organizations such as the Association of Collegiate Schools of Architecture, the National Architectural Accrediting Boards and the NCARB.

FDR memorial: an opinion

Abraham Geller's solution to the FDR Memorial Competition program is the favorite of Mrs. Sibyl Moholy-Nagy, and the award-winning Pedersen-Tilney project a close second. Mrs. Moholy-Nagy, a professor of architecture at Pratt Institute, made this clear in the course of an illustrated talk given at a recent meeting of the New Jersey Society of Architects in

Newark. She classified the other submissions in four categories: *Pure Structural, Pure Landscape, Pure Sculpture* and *Traditional,* adding that she did not feel that any solution which fell solely into one of these categories could be considered entirely satisfactory. Professor Moholy-Nagy went on to deplore the state of landscape architecture in the US today, and stressed the importance for the architect of being aware of the level of architectural comprehension of the man in the street.

Bouwcentrum: building research

A plea for standardization and an appeal to architects to solve the problems of monotony of design were made recently in New York by Dr. Jan van Ettinger, director of Bouwcentrum, the influential Dutch building research institution with headquarters in Rotterdam. Contrasting the numbers of rich and poor throughout the world, and citing the fact that numbers of the poor are increasing at twice the annual rate of the less poor, Dr. van Ettinger went on to emphasize that in order for housing to be made available in the amounts required, obsolete building methods must be discarded in favor of production processes which, for example, have placed the TV set in the price range of most people, at least in the Western countries. He also urged the world's universities to devote more attention to building research and to transmission of information.

Asked whether he saw any conflict between the role of his Bouwcentrum and that of the professional architect, Dr. van Ettinger described the function of the Bouwcentrum as "analytical," in that it assembled facts on building products, analyzed them, conducted research, and classified the results of its activities to make them readily available to those interested; the architect's role, on the other hand, was one of "synthesis," or putting together of the information made available to him by his own experience and by other sources, such as the Bouwcentrum.

Dr. van Ettinger was trained as a mechanical engineer and is an experienced statistician. He considers construction a psychologically very satisfying form of investment, because "you can see it." The Bouwcentrum is a privately controlled organization, situated in a city virtually razed by bombing during World War II, but now rebuilt. (*Continued on page 8*)

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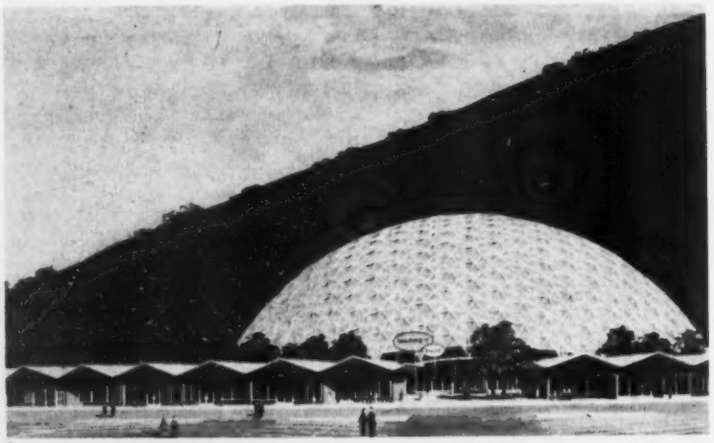

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1. Photo shows rendering of $5 million Charles Patterson Van Pelt Library now being erected at the University of Pennsylvania in Philadelphia. The eight-story building will have a capacity of 1½ million books, and is scheduled for completion early in 1962. Architects are Harbeson, Hough, Livingston and Larson.

2. Anodized aluminum geodesic dome scheduled for construction in Marin County, Calif. The 200' diameter dome, based on principles developed by R. Buckminster Fuller, will house a shopping center, and will be the largest dome of its type in the country. Architect is John S. Bolles AIA.

3. Construction on a new $4 million, 190-bed wing for St. Joseph's Hospital, Burbank, Calif., was started recently. The rectangular unit will feature white exposed concrete columns and white ceramic tile striped spandrels. Welton Becket FAIA is architect.

A|E NEWS

(*Continued from page 7*)

Bunshaft receives medal

Gordon Bunshaft FAIA was presented with the New York Chapter, AIA, 1961 Medal of Honor for "outstanding achievement in architecture," at the Chapter's recent Annual Meeting. Mr. Bunshaft is with Skidmore, Owings and Merrill, architects. Also cited was Othmar H. Ammann, who received the Chapter's Award of Merit for "distinguished work in large bridge construction." The latter award is voted only upon special achievement as determined by the Chapter.

N.Y. architects urge master plan

The Board of Directors of the New York Society of Architects adopted a resolution recently urging the City of New York to halt construction on the City Hall and Foley Square civic buildings—now in the planning stage—until a Master Plan to integrate and guide future development of the entire area is drawn up. Society president is Nathan R. Ginsburg AIA.

The resolution called upon New York City officials to apply for Federal Urban Renewal planning funds in order to make a comprehensive study and to draft a modern Master Plan for an integrated Manhattan Civic Center in the disputed area. Suggestions and criticisms of present plans for this area were presented in the resolution. Total cost of work involved is approximately $123 million.

Shortly thereafter, the Architects Council of New York, of which the N. Y. Society of Architects is a member, voted unanimously to endorse the resolution. Other members of the Architects Council of New York are the AIA Chapters in the Bronx, Brooklyn, Queens and Staten Island, and the Brooklyn Society of Architects.

CEC annual meeting

Consulting Engineers Council raised its membership to over 1,100 consulting firms in all fields of practice with the acceptance into membership of the Practicing Engineers and Land Surveyors of Wyoming at the Board of Directors' recent Annual Meeting in Chicago.

More than 65 subjects were covered in three days of deliberations. Among them was a clarification of the Council Board's stand on registration laws which states that "corporate practice is permissible only so long as the majority of the owner, principals, officers and/or stockholders of the corporation are registered and responsible, as such, for engineering services which the corporation provides."

Honored guests at the Annual Convention Banquet were AIA President Philip Will, Jr., Gerald T. McCarthy, president of the AICE, and Glenn W. Holcomb, president, ASCE. Officers of the Council installed at the Convention were Harold P. King, president, Cedric R. Acheson, first vice president, Sanford K. Fosholt, second vice president and George W. Poulsen, Jr., treasurer. George J. Toman was re-elected as secretary.

The next meeting of the CEC Board will be held November 2-4 in Miami Beach, Florida.

CSI convention

An address by Philip Will Jr. FAIA, president of AIA, was a highlight of the recent three-day convention of Construction Specifications Institute in New York. Mr. Will noted that "such is the complexity of design, choice of materials and selection of construction techniques and such is the required standard of performance for a modern structure that more and more buildings are built twice; one in mock-up and finally for real. To a significant extent architects and engineers are adopting the procedures of research; test and compare before using."

There were three panel discussions dealing with specification writing problems.

The keynote address of the Convention was given by James C. Bort, newly elected president of the CSI.

AISI general meeting

Logan T. Johnston, president of Armco Steel Corporation, told the 69th General Meeting of American Iron and Steel Institute in New York City recently that the steel industry must alter its traditional patterns in order to meet foreign competition here and abroad. Mr. Johnston cited several factors to support his viewpoint that the American steel industry must adopt an international rather than an entirely national marketing and manufacturing set-up.

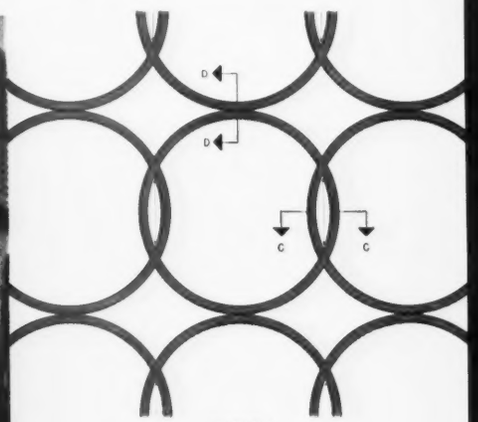
The steel executive stated that higher labor and capital equipment costs in the U. S., along with "antique" depreciation provisions and foreign trade barriers, have combined to cut the steel industry's participation in foreign markets by about 85 per cent in 13 years.

(*Continued on page 11*)

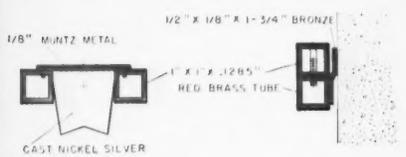
Circle 104 for further information about ANACONDA→

3 faces in bronze

▲ **Cooperative Savings & Loan Association,** Wilmington, N. C. Architectural Bronze lends to this modern building of glass and metal a feeling of warmth and dignity. Nearly all the architectural metals used on the structure are extruded Bronze, including mullions, glass stops, doors, and air-conditioning grilles. ARCHITECT: Leslie N. Boney, Wilmington, N. C. FABRICATOR: Newman Brothers Inc., Cincinnati.



ELEVATION
ARCHITECTURAL SCREEN



SECTION C-C SECTION D-D

▲ **Empire Savings Building & Loan Association,** Denver, Colo. The architectural screen dominating this facade consists of 24″ dia. circles made from 1″ square Red Brass tubes. Where rings intertwine, cast Nickel Silver inserts with sandblasted sides and polished faces accent the design (see drawing above, right). ARCHITECTS: Raymond Harry Ervin & Associates, Denver. FABRICATOR: William G. Zimmerman Architectural Metals, Inc., Denver.

These facades illustrate the distinctive beauty and the versatility of Bronze in architectural design. They are three of the many new examples shown in our 2nd Edition of "Architectural Metals by Anaconda." This helpful 64-page book contains practical information and detailed data on the architectural applications of Copper, Brass, Bronze, and Nickel Silver—colors, forms, physical and mechanical properties, application methods, and suggested specifications. In addition, there are many pages of fabricators' shop drawings showing exactly how effects were achieved. Write for your copy. Address: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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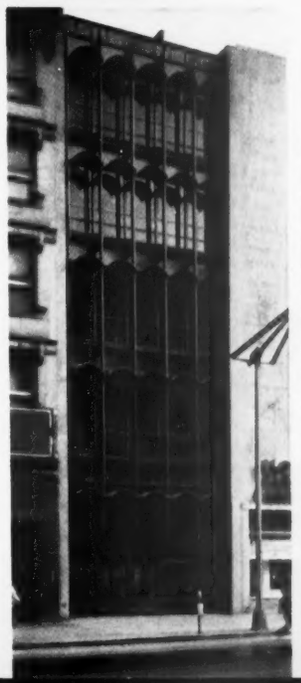
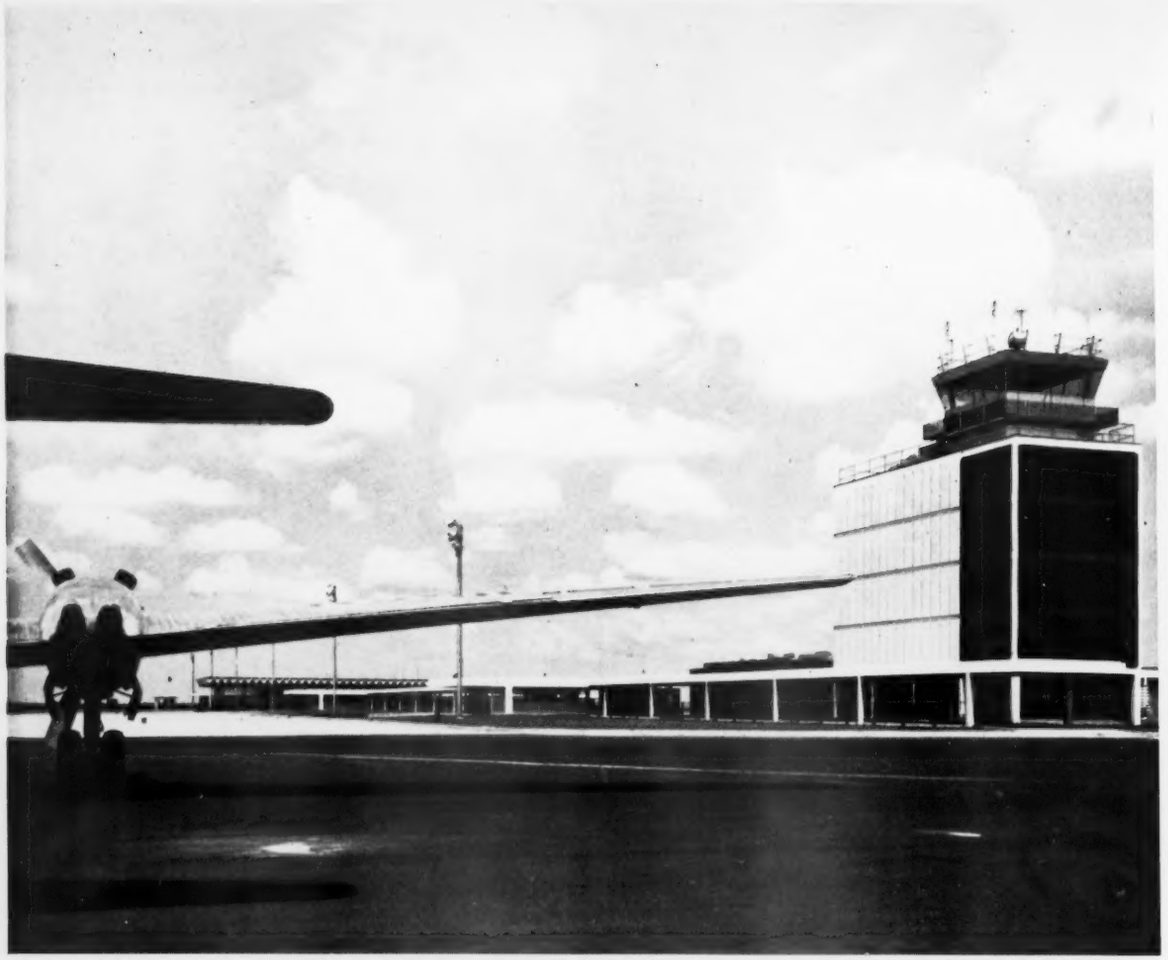


Painting Industry Insurance Fund Building, New York City. Here is a double curtain wall of Bronze, all in a medium statuary finish. The inner or closure wall mullions are formed of extruded shapes and the spandrels are light-gage Bronze sheets bonded to micro-sanded, cement-asbestos board. The exterior mullions of rectangular Bronze tubes, with internal steel reinforcement at the outriggers, support the arched skyshades and catwalks at each floor. Skyshades are 1½″ thick shells 4′ x 3′, formed of Bronze sheet with inner stiffeners of Bronze "Z" shapes. ARCHITECTS: Mayer Whittlesey & Glass, W. J. Conklin, Associate Partner, New York. FABRICATORS: Trio Industries, Inc., Bridgeport, Connecticut.



Mechanical Contractor: Texas General Air Conditioning Company; Consulting Engineers: Regan and McCaughan; Mechanical Engineer: A. S. Vener, Bill Miller and Associates; Architect: Donnelly & Whittet; General Contractor: Braselton Construction Company. All of Corpus Christi, Texas

CORPUS CHRISTI INTERNATIONAL AIRPORT Sets a new standard in comfort with GAS and CARRIER absorption refrigeration

There's a 600-foot run from the Operations Tower to the Terminal buildings at the new Corpus Christi Airport. In view of this extensive layout, a medium temperature hot water system was considered most practical for heating and cooling all buildings.

The Airport owners chose *gas* and Carrier absorption refrigeration for this system, to insure optimum temperature control, dependability, and economy. A gas-fired boiler supplies hot water for heat in winter, and in summer, the same boiler delivers hot water to energize the Carrier unit for cooling. The entire refrigeration system is the essence of simplicity . . . and thrifty gas keeps fuel costs low.

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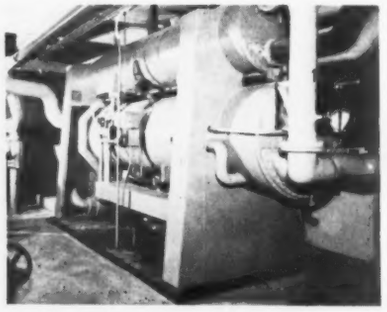
American Gas Association



This Carrier absorption unit at Corpus Christi International Airport delivers 42 F. chilled water for cooling when supplied with 267 GPM hot water, at 280 F., from a gas-fired boiler. System is first of its kind in Corpus Christi area.

FOR HEATING & COOLING GAS IS GOOD BUSINESS!

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A|E NEWS

(*Continued from page 8*)

May construction

The value of total new construction put in place last May amounted to $4.8 billion, according to preliminary estimates of the Bureau of the Census, US Department of Commerce. This was 11 per cent more than in April 1961, compared to a normal seasonal increase of 9 per cent between April and May. Spending for new construction in May 1961 was 3 per cent above the May 1960 level.

Total new *private* construction in May 1961 rose to $3.3 billion, or 9 per cent more than in April, compared to a normal seasonal increase of only 7 per cent. The May amount was 1 per cent greater than in May a year ago.

Total new *public* expenditures in May amounted to $1.5 billion, or 18 per cent above April. Normal seasonal increase is 13 per cent. Spending for public construction last May was 7 per cent higher than for May 1960.

Skilled craftsmen fade away?

Alarm is growing in the construction field among architects, engineers, contractors, state and federal labor department officials and even union leaders because a serious shortage of skilled craftsmen is building up throughout the nation and no one has yet found a way to solve the problem.

The reason is because the psychology of young men has changed, according to a study made by the Building Trades Employers Association of Westchester and Putnam Counties, New York, which is one of the first organizations in the country to become aware of the fact and to take steps to find a solution in its area.

A steady decline in applications for apprentice training alarmed members of the group about the future skilled labor supply and caused them to institute an investigation. A recent nationwide survey revealed that by 1970 there will be a deficit of 2,000,000 skilled construction workers.

A factor in the situation may be that construction methods have changed considerably in recent years. New products and techniques have speeded up completion of projects. This increases the frequency that a man must look for a new job, which in turn has increased competition to such an extent that construction workers are really in a "rat race," an official of the group commented.

(*Continued on page 12*)

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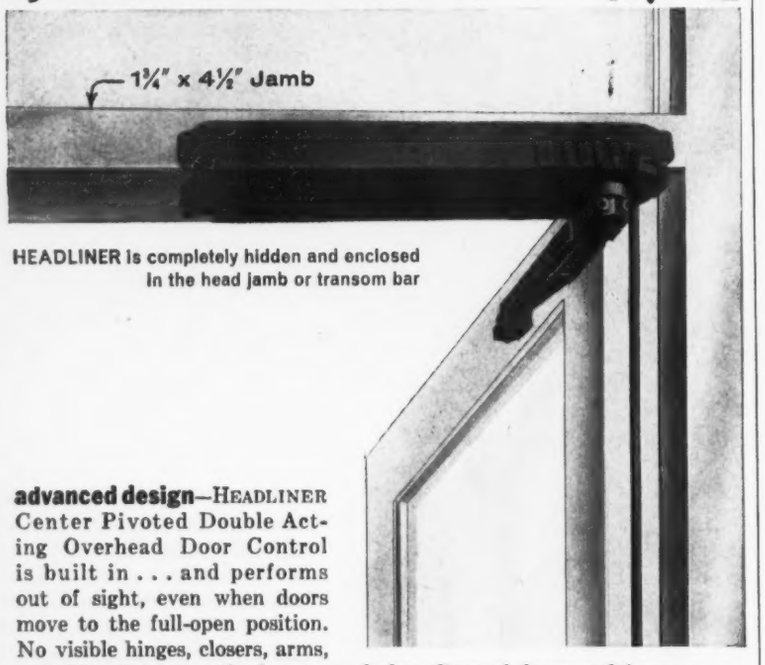

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A|E NEWS

(*Continued from page 11*)

The major factor, however, was believed to be the fact that young persons are losing personal interest for any type of work that must be performed with their hands. More importantly, the report continued, they reject the thought of investing four years in training at a low rate of pay.

Plastics handbook project

Initial stages in the preparation of an all-embracing materials handbook and design manual for structural plastics used in aerospace vehicles are under way at Syracuse University Research Institute. Dr. C. S. Grove Jr., member of the project, believes that much of the information being developed for aerospace structures can be translated into data useful in construction. Data is at present being assembled, and potential sources are being asked to contribute information, according to Dr. Grove. The project is being sponsored by the US Air Force.

Private enterprise and public works

A joint petition from four Oregon groups, in support of private competitive enterprise in governmental public works, was presented May 1 in Washington, D. C. to all members of Oregon's congressional delegation. Submission was on behalf of the Oregon Chapter, AIA; Consulting Engineers Association of Oregon; Portland Chapter, Associated General Contractors; and the Oregon Technical Council.

The 35-page petition presents the case for private enterprise in the engineering and architecture of public works, and urges legislation to restore balance between public and private engineering. Similar action is being taken by some parent organizations on a national basis.

Grants/awards/scholarships

A Ford Foundation grant of $50,000 has been awarded to the Illinois Institute of Technology to be utilized in a program to encourage highly qualified individuals into faculty careers in engineering. The grant will enable IIT to make forgivable loans to present or potential doctoral students who wish to enter engineering faculty careers but who for financial reasons cannot complete their courses.

Seven architectural students were recently awarded $1,000 fifth year tuition scholarships in the fourth annual Student Architectural Design Competition sponsored by the Tar Division of Koppers Company, Inc.

As in previous years, the department of architecture at each school selected its own finalists. Schools where awards were won by students are: University of California at Berkeley, University of Illinois, Ohio State University, Syracuse University, Yale University, Clemson College and the University of Houston.

Hot dip galvanizing awards

Ten awards of $1,000 each will be offered by the American Hot Dip Galvanizers Association in cooperation with the American Zinc Institute for ideas developing new applications and markets for hot dip galvanizing. Each award will be accompanied by an appropriate medal and a certificate of achievement.

Entries must be submitted prior to May 1, 1962. Inquiries should be addressed to: American Hot Dip Galvanizers Association, 5225 Manning Place N.W., Washington 16, D. C.

Trinity College Library

Paul G. Koralek has been announced as winner of the international architectural competition for the extension to Trinity College Library, Dublin, Ireland. The present library building is an 18th century structure.

Plastics exhibit on the road

"Plastics—A New Dimension in Buildings," a traveling education exhibit sponsored by the Society of Plastics Engineers, Inc. and underwritten by 22 leading plastics manufacturers and fabricators will tour 16 major North American cities during the next 2½ years. The exhibition will be held at leading museums and art centers and displays the use of plastics in construction, interior design and as an aesthetic medium. The itinerary through May, 1962 follows. Additional locations will be announced at a later date.

1961	
September 1-30	Memphis Museum Memphis, Tennessee
October 8-30	Columbia Museum Columbia, South Carolina
December 1-31	Museum of Arts Birmingham, Alabama
1962	
January 15-February 11	National Assn. of Home Builders Washington, D. C.
March 1-31	Columbus Museum of Arts and Crafts Columbus, Georgia
April 15-May 15	Walker Art Center Minnesapolis, Minnesota

REINFORCED PLASTICS IN BUILDING

Reinforcing of plastics has a fundamental impact on their physical properties, and reinforced plastics have been playing an increasingly important role on the architectural scene. Accordingly, A/E NEWS recently posed a series of questions to several members of Owens-Corning Fiberglas Corporation, all of them closely connected with the development of reinforced plastics for many years. Their answers set forth the salient characteristics of this material, and review its present status and its future prospects.

Q *How does a reinforced plastic differ from one which is not reinforced?*

A The difference is analogous to that between plain concrete and reinforced concrete, except that reinforcing steel is placed in areas of maximum tension; plastic reinforcement is distributed uniformly.

Q *Which categories of plastics are most commonly reinforced?*

A Polyesters are the plastics—or resins—constituting about 90 per cent of all glass fiber reinforced plastics. The remainder includes the melamines, phenolics, nylon, polystyrene, acrylics, and epoxies.

Q *What is the most common type of plastic reinforcing?*

A Glass fiber is the most common; for its weight it is the strongest fiber in existence, exceeding the strength of steel. It is used in various forms, including fabric, mat and yarn.

Q *Which properties of plastics are affected by reinforcing?*

A Reinforcing increases three properties which are frequently deficient in plain plastics: mechanical strength, impact resistance and dimensional stability.

Q *How does it affect mechanical strength?*

A Addition of glass fiber can increase tensile strength from 9,000 psi to as much as 120,000 psi. Compressive strength is increased about fourfold.

Q *How about impact resistance?*

A Impact resistance is measured in foot pounds per inch of notch, a standard notch being an element of the testing procedure. Addition of reinforcement to the base resin raises impact resistance from a fraction of a foot pound per inch of notch to the range between 15 and 30 foot pounds. Glass fiber, having no elongation, is perfectly elastic below its yield point, thus accounting for the resistance to shock.

Q *And dimensional stability?*

A Dimensional stability is another name for the coefficient of linear expansion. In the case of plastics a wide choice is available depending on the *direction* of the reinforcing fibers and the *amount* used. It is thus possible to create a reinforced plastic whose dimensional stability can be made to approach that of steel or aluminum or most other building materials, depending on the requirements (*Photo 1*).

Q *In what other respects does addition of reinforcing to plastics increase their structural usefulness?*

A Heat resistance is increased considerably. This is particularly significant in the case of thermoplastic resins. These differ from the other great class of resins—the thermosetting—in their behavior at high temperatures. The comparison is the same as that between a candle and a hard-boiled egg: thermoplastic resins resemble candles in that they melt above certain temperatures, whereas the thermosetting resins, like hard-boiled eggs, become hard when heated. Therefore, addition of glass fiber to a *thermoplastic* resin can raise its melting temperature to a level where boiling water will not harm it.

Q *Can reinforced plastics be incorporated in sandwiches? How? What are the advantages?*

A Reinforced plastics can be incorporated into sandwiches in combination with other materials. This increases the combined product's rigidity and insulation value, and gives maximum strength-to-weight ratios.

Q *How does a sandwich differ from a laminate?*

A A *sandwich* is a mechanical connection of two or more layers. Its purpose is to place the strongest, densest materials where they will do the most good, i.e. at the face, farthest removed from the neutral axis. The part in the middle is filled with a less dense, low strength material forming the core. A *laminate* is a blending of layers into a single unit under heat and pressure. A common laminate is formed by bonding a polyester resin and glass fiber to rigid vinyl sheet, thereby combining the toughness and chemical resistance of the vinyl with the structural strength and temperature resistance of reinforced plastics.

Q *What general structural applications do reinforced plastics possess today?*

A Most common applications include corrugated and flat sheets in their various forms. Their performance is known and recognized. Use is made of these plastics' properties of strength, "built-in" color stability and inherent translucence (example: the US Pavilion at the Brussels World Fair). In the form of sandwich panels the range is in practice without limit, since reinforced plastics can be used either as a facing or a core material to attain the desired characteristics of strength and appearance.

Q *What new applications are in prospect?*

A Included here are uses in the integrated ceiling, where the translucent properties are supplemented by their strength, by providing increased stiffness as functions of ceilings becoming more and more complex. Another use is as roofing, either alone or in sandwich form. Because of the material's radio transparency, it is used this way in all the DEW line radomes and, to mention only one, Professor Arthur E. Burton at Iowa State University has under way a project calling for plastic enclosure panels for an arch catenary cable suspended roof structure. Resistance to corrosion can justify use of reinforced plastic panels as walls and roof, hung from an exterior steel structure in plants where danger from corrosion is greater from inside than out (*Photos 2 and 3*).

Q *What is the likelihood of beams and columns of reinforced plastic replacing the prevalent wood, steel and reinforced concrete?*

A The attitude of the plastics industry is that in the long run it is not realistic to think of replacing, say, a wooden 2x4 with a plastic 2x4, or a steel I-beam with a reinforced plastic I-beam. This is so because a reinforced plastic, when utilized to take best advantage of its particular properties and forming techniques, would not necessarily take the shape of an I-beam or a 2x4. However, for the immediate future, the industry says that reinforced plastics certainly *can* be used in those forms, but that it is merely an intermediate step. An example of this is the lowly rowboat: its hull certainly can be made of plastic planks, but it would be much more in the nature of the material to mold the hull in a single section.

Q *What is the attitude of building officials and codes towards reinforced plastics?*

A Attitude of building officials has, on the whole, been mixed. This problem is treated at greater length in a special article on page 4.

Q *Can reinforced plastics take the place of other materials as formwork?*

A Reinforced plastic forms can give concrete a very wide range of shapes and surface textures (*photo 4*). Plastic forms can be used in casting large and complex sections of domes, hyperbolic paraboloids, folded plates and other warped shapes. Another advantage is a reduction in the number of seams on the finished concrete, since reinforced plastic forms come in much larger dimensions than does plywood.

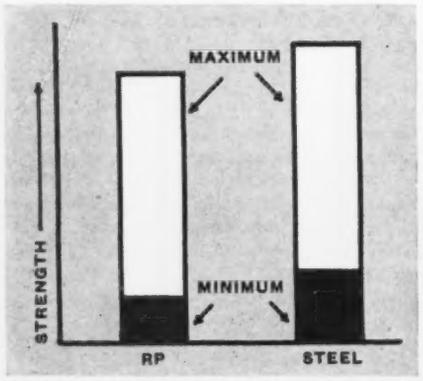
Q *What has been the experience of reinforced plastics under outdoor exposure?*

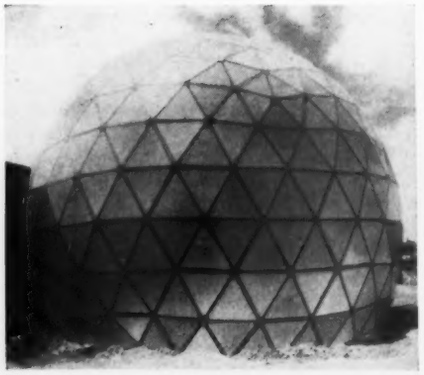
A Until quite recently outdoor exposure has been detrimental in that it has caused fading, loss of gloss and breakthrough of the glass fibers. A testing program conducted by Owens-Corning Fiberglas starting in 1955 was aimed at discovering which properties of reinforced plastics caused weathering. Panels were set up outdoors in three locations in Arizona, Maryland and Florida, and at the end of two years it was discovered that neither surface finish, nor manufacturing process, nor type of glass fiber, nor panel thickness, nor color had any effect on weathering. This placed the responsibility on the resin system. Different resin systems were then studied, and it was found that the acrylic modified polyesters were the most resistant. They were still not, however, resistant to the point where panels could be guaranteed outdoors over five years, let alone given a 20-year bond in the manner of many roofing systems. Recently, reinforced acrylic plastics have been developed which bid fair to remedy this shortcoming.

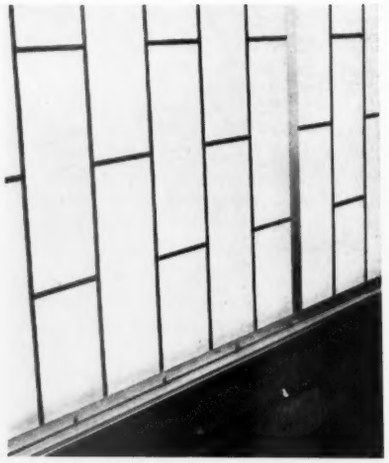
Q *What actually causes a reinforced plastic panel to lose its light transmission?*

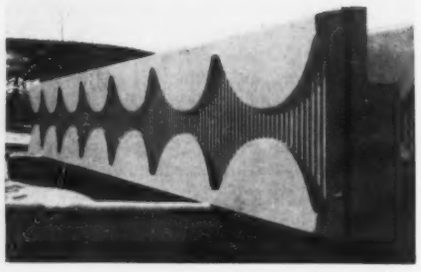
A Loss of light transmission, which was formerly known to reach 60 per cent within two years, is caused by a breakdown in the resin. The culprit is the ultraviolet element in the sun's rays, so that the Florida panels mentioned in the test suffered much more than the Maryland or the Arizona ones. Resins have varying amounts of ultraviolet absorber, and when saturation point is reached, light transmission begins to drop very sharply. The reason why the

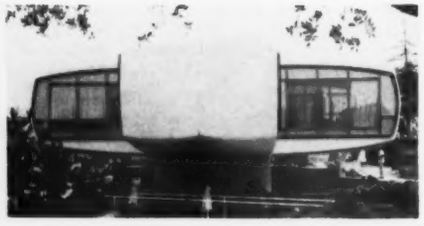
(*Continued on page 15*)

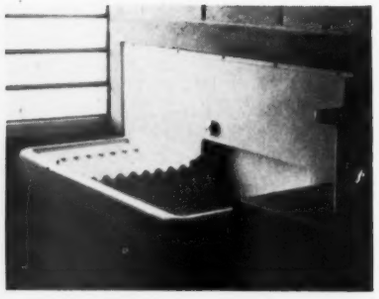












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4	5	6

1. Both reinforced plastics and steel have a wide range of strengths, depending upon their composition and treatment. Diagram from R. H. Sonneborn's book "Fiberglas Reinforced Plastics" (Reinhold). 2. A 45' high, 60' diameter Fiberglas-reinforced plastic radome, produced by Universal Moulded Products. Enclosure is radio transparent. The radome consists of 285 prefabricated reinforced plastic panels belted together. 3. Part of a complete reinforced plastic panel wall system is shown. Panel consists of two 1/16" thick glass fiber reinforced polyester resin sheets with a 2 5/8" air-space, resulting in a U factor of 0.40. A weather-resisting acrylic is fused to the exterior facing during production. (Photo courtesy of Kalwall Corp.) 4. Potentialities of plastics as a concrete forming material are shown in this picture of a textured prestressed beam built for use in a new high school in Brooklyn Center, Minn. The forms were developed by Resco Inc. using an Archer-Daniels-Midland Co. resin reinforced with glass fiber. Use of a reinforced plastic form eliminated the usual seam. 5. Home of the Future, now at Disneyland, was designed as part of a plastics-in-building project sponsored at MIT by Monsanto Chemical Co.'s Plastics Division. It illustrates the "material oriented" approach to reinforced plastics design. 6. Molded fiber glass reinforced plastic kitchen sink is built into wall. The sink, as well as molded toilet-lavatory units, roof water tanks, louver vents and translucent windows were made from reinforced plastic and form part of a 20,000 prefabricated rural school program planned by the Mexican Government over the next ten years.

REINFORCED PLASTICS
(*Continued from page 13*)

100 per cent acrylics have such good light reduction is because they are transparent to ultraviolet rays: none is absorbed to cause breakdown of the resin.

Q *What is meant by "aging" of plastics?*

A "Aging" is a misnomer. There are no living cells in plastics, as there are in wood, for example; thus no aging as such can occur. Any physical changes which do come about must therefore be brought about by external causes, as shown earlier.

Q *Does shape of a unit or panel have any effect on its weathering properties?*

A No. Excessively sharp turns, however, caused by bad workmanship, can bring glass reinforcing to the surface, and cause a breakthrough of the surface resin.

Q *Does color of a translucent panel have any effect on its weathering properties?*

A It is very important to use only proven pigments which are light stable.

Q *Are some climates more suitable for reinforced plastic construction than others? Why?*

A Climate has no effect on strength. It has considerable effect on weathering, as shown by tests. Polyester panels stand up much better in Europe and in those parts of the US where they are less frequently subject to the ultraviolet element in the sun's rays.

Q *What is the most common ratio of glass reinforcing to resin?*

A The ratio varies from about 25 per cent by weight for building applications to about 60 per cent for high strength aircraft uses.

Q *What are the dimensional limitations on reinforced plastics?*

A Limitations are chiefly a matter of economics, production processes and transportation. There is practically no limit on length or thickness except as affected by cost. As regards width, limits are set by size of manufacturing equipment, and this differs according to whether production is by press, or with films or with mats. Exact dimensions of course vary with each manufacturer. Even 100'x4' sheets are possible, with flexural modulus as the limiting factor if exorbitant thicknesses are to be avoided.

Q *What variety of finishes is available?*

A Glossy, mat, crinkled, pebble grain and numerous patterns. There are in addition various coatings and films, including metallic ones.

Q *Can reinforced plastic structures be painted?*

A Yes. Also, their good dimensional stability tends to increase paint life.

Q *What is the chief concern today as regards use of reinforced plastics as a structural material?*

A Inadequate specifications and improper materials selection, cost and weather resistance. Rapid progress is being made on weather resistance. The industry sees an important challenge in explaining to architects and designers the basic difference between a substitution or "product oriented" use of plastics and a design or "material oriented" approach. In the first, the attempt is made to replace existing products with plastics, while preserving their shape and texture. In the second, plastics are chosen because their desirable properties fit the problem in hand; these properties are taken as a starting point and by developing a character of their own they exert an influence on the appearance of the final design (e.g. the Monsanto house and the new Mexican schoolhouse fixtures, *Photos 5 and 6*).

Just Published! *New manual on monolithic reinforced concrete construction*

...prepared for architects, engineers and contractors designing and building with poured-in-place concrete joist construction.

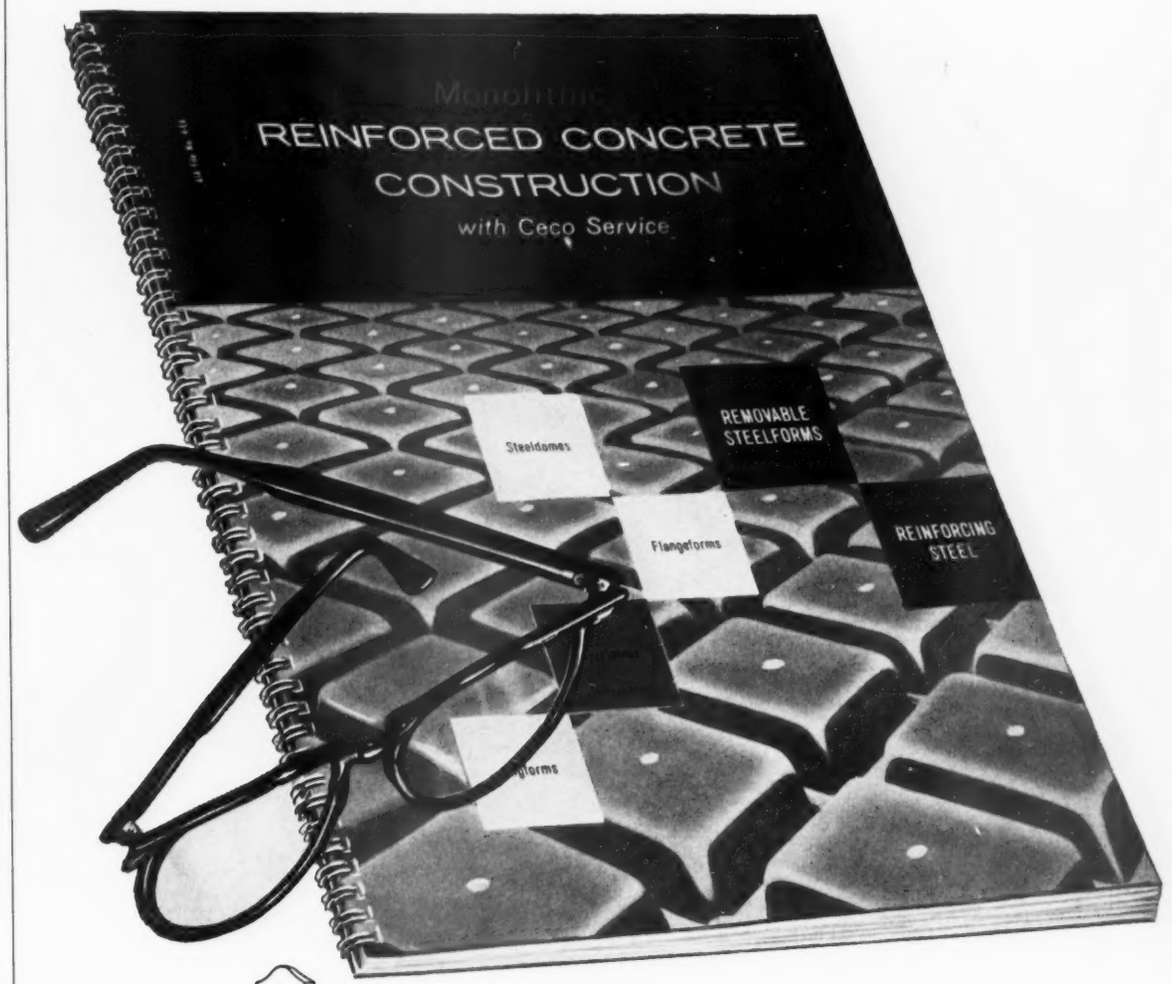
...more than 190 photos, isometric details, cross section drawings and tables. Sixty-eight pages, wire-bound.

...compares different types of steelforms...steeldomes, flangeforms, adjustables and longforms.

...includes size data, concrete tables, installation details, erection procedures and job pictures.

...four pages of unretouched photographs show imaginative ceiling effects created by architects, with Ceco steeldome construction.

...presents information on underfloor electrification, reinforcing steel and accessories.



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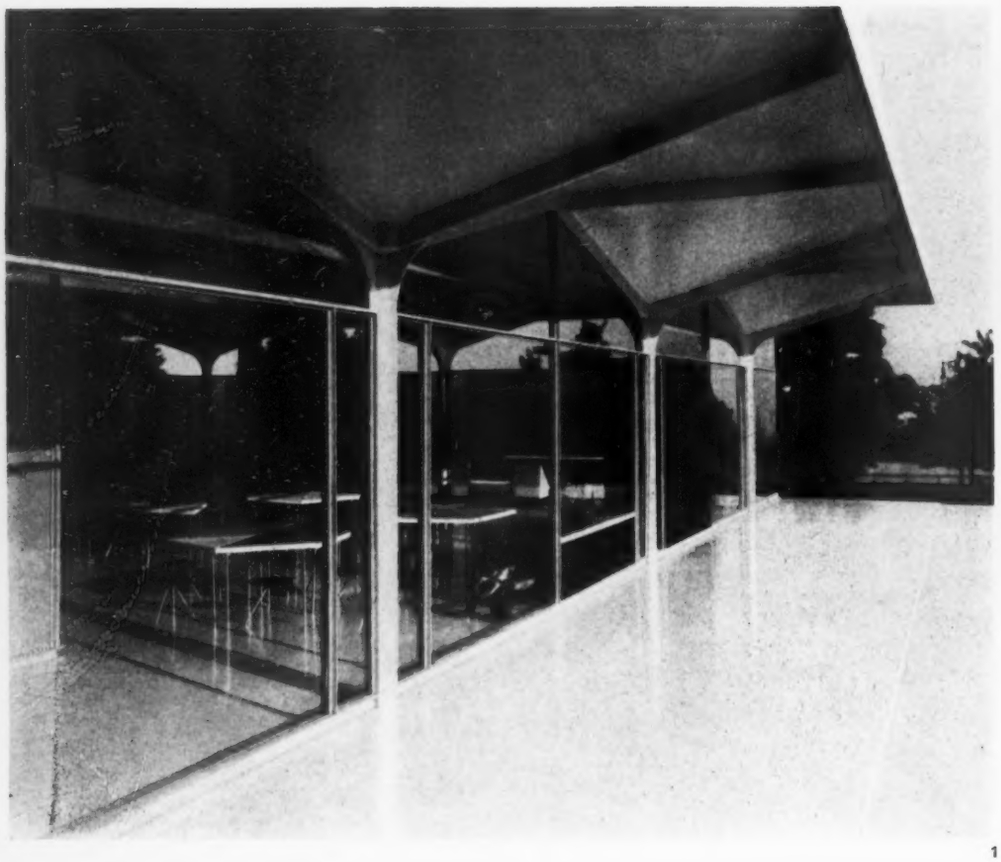
AEN

Circle 108 for further information

A PREFABRICATED



1

Construction stages of an MIT design project which will result in erection of a prototype prefabricated plastic schoolhouse are shown in the following photos. The introduction was prepared by Professor A. G. H. Dietz, a member of the project's Advisory Committee.

Because of rapidly-shifting populations and changes in the age-groups attending schools, an acute need exists for school construction methods capable of great flexibility in design with standard parts, and capable also of being readily disassembled for rearrangement or transportation to new locations.

One approach pictured herewith consists of light-weight hyperbolic paraboloid roof sections constructed of sandwiches with reinforced-plastic facings and foamed polyurethane cores. The hyperbolic paraboloids are bolted to each other and to the flanges of steel columns in turn anchored to concrete footings. All parts are demountable and transportable except the footings.

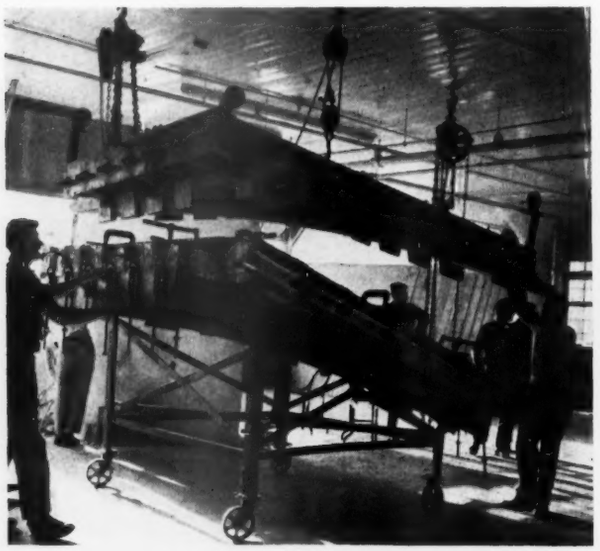
All paraboloids are 8′-0″ square in horizontal projection. Four are bolted to each column, allowing columns to be 16′-0″ apart around the periphery of a 32-foot square. The paraboloids mounted on the columns are sloped downward toward the hollow column; the four paraboloids constituting the central 16′-0″ square of the 32′-0″ cluster rest at their edges upon the peripheral paraboloids so that no central column is needed. All paraboloids pitch toward the hollow columns which therefore act as rainwater conductors.

Sandwiches are designed to absorb the tensile, compressive and shear forces set up, metal edge members absorb shears and thrusts, and columns resist bending, such as that induced by horizontal wind forces.

Columns and paraboloid sections are light enough to be handled by four-man crews without cranes or other lifting devices, if necessary.

The school construction was designed and the prototype sections fabricated and erected under a cooperative design project of the Departments of Architecture and Civil Engineering at the Massachusetts Institute of Technology supported by the Educational Facilities Laboratories of the Ford Foundation. Professors Marvin Goody and Frank Heger headed the architectural and structural design aspects, respectively.

2

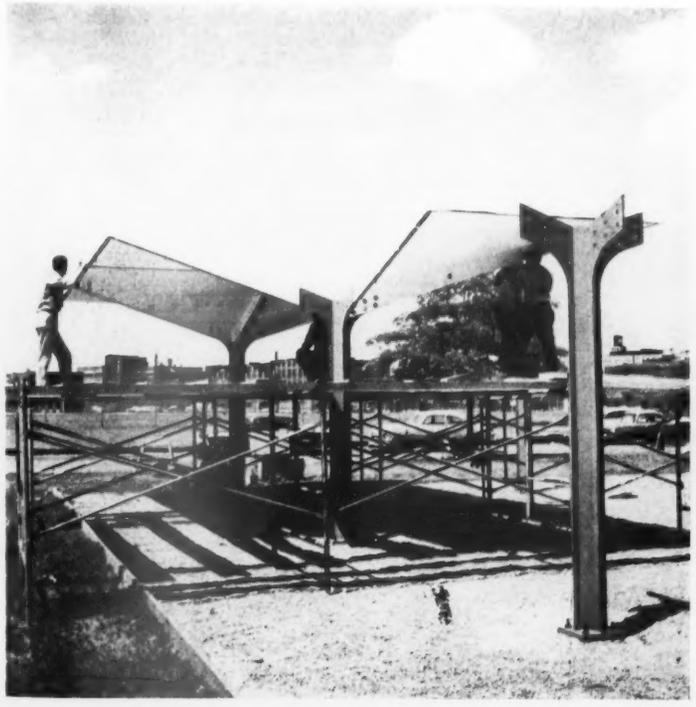


1. Model of the segmental school showing columns supporting hyperbolic paraboloid sandwiches with edge members. Exterior glass wall is shown fitted into the structure. 2. Mold for hyperbolic paraboloid being closed preparatory to forming polyurethane in place between skins of woven roving reinforced polyester.

PLASTIC SCHOOLHOUSE

3

5



4

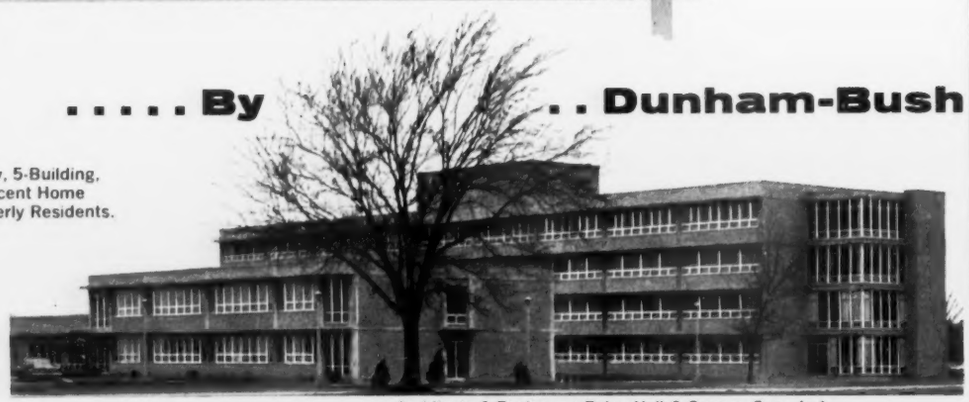
6

3. Preparing footing and anchor bolts for steel column. Drainage hole for run-off is shown. 4. Prefabricated hyperbolic paraboloids laid out on ground preparatory to erection. 5. Hyperbolic paraboloids being erected and bolted together on steel columns. 6. First bay of schoolhouse roof is shown completed. Columns at left are ready to receive additional sections (Photos courtesy of Massachusetts Institute of Technology.)

CONVALESCENT HOME *Comfort*

. . . . . By . . Dunham-Bush

New Lake County, 5-Building, 4-Story Convalescent Home Housing 200 elderly Residents.



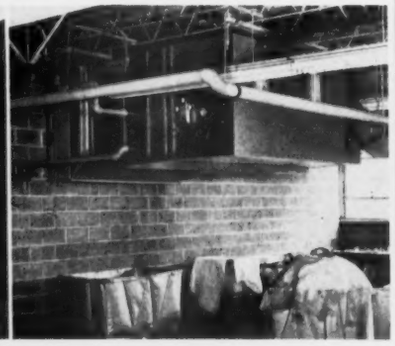
Architects & Engineers: Beine-Hall & Curran, Gary, Ind.
Contractor: Morrison, Inc. Hammond, Ind.

Lake County Installs All DUNHAM-BUSH Heating in New Convalescent Home at Crown Point, Indiana

Lake County commissioners and their Architects and Engineers have created a new concept of physical care facility in their new convalescent home. The home, open to elderly persons regardless of financial status, alleviates a common over-crowded hospital situation. Dunham-Bush contributes to Lake County Convalescent Home comfort (and economical operation) thru: Thermovector Radiation in Ward Rooms and Corridors; Special Two-row Radiation in Administration Building; Cabinet Heaters in Sun Rooms; Heating-Ventilating Units, Ceiling Cabinet Heaters in Cafeteria plus Condensation Pumps and Heating Specialties. There's a place in your convalescent home or hospital planning for Dunham-Bush. Write today for full details.

Typical Ward Room for 4 Persons is Heated with Dunham-Bush Radiation.

Corridor showing Dunham-Bush Radiation.



Dunham-Bush "HHU" Heating-Ventilating Unit in the laundry.

DUNHAM-BUSH

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SALES OFFICES LOCATED IN PRINCIPAL CITIES

Circle 109 for further information

Another in A/E News series on associations serving the professional interests of architects and consulting engineers—this month dealing with the Building Research Institute and the Construction Specifications Institute.

BUILDING RESEARCH INSTITUTE

A young organization dating back to 1952, the Building Research Institute has, in its brief history, been a strong and active force in promoting the advancement of the sciences of building, and the arts and technologies which it comprises. BRI cuts across industry lines and brings together all of the interrelated segments in a common endeavor. It is a unit of the Division of Engineering and Industrial Research of the National Academy of Sciences-National Research Council. The approach to all subject matters is objective, non-commercial and unbiased and the aim is to permit a free exchange of all pertinent scientific data.

Conferences/meetings

The BRI spring and fall conferences, open to nonmembers also, are attended by representatives from all segments of the building industry. At these conferences, specialists present papers on building research, discuss research problems, and uncover areas for further research. Throughout the year, workshops and study groups analyze trends and problems in particular fields and develop programs to work toward solutions.

Publications

BRI publishes in book form *Technical Reports*, which include the proceedings of all conferences, workshops, study group meetings, etc. Other publications include: *Building Science News*, a monthly newsletter; *Building Science Directory*, a guide to building research being conducted by various organizations; and *BRI Register of Members*, an annual listing, indexed and categorized by products and services.

Membership

The BRI membership of 1,200 is widespread. It is open to firms and individuals in the building industry. Inquiries should be directed to: Milton C. Coon, Jr., Executive Director, Building Research Institute, National Academy of Sciences-National Research Council, Washington 25, D. C.

CONSTRUCTION SPECIFICATIONS INSTITUTE

Since its founding in 1948, the Construction Specifications Institute has devoted itself to improving construction specifications. It engages in research and study of problems and aspects of specification writing and provides a clearing house for unbiased technical information on specifications for the fabrication and installation of construction materials and equipment.

Meetings/conferences

CSI holds an annual convention where various speakers and panels discuss pertinent topics. Local chapter meetings are held throughout the year. Often local chapters volunteer for assignments on research projects which lead to technical reports.

Publications

CSI regularly publishes technical data, field and laboratory reports in the monthly *Construction Specifier*.

Membership

There is a membership of 4,940 individuals and 49 chartered chapters. Membership is open to individuals engaged in specifications writing. Inquiries should be directed to: Harry C. Plummer, Secretary-Treasurer, Construction Specifications Institute, 632 Du Pont Circle Building, Washington 6, D. C.

Circle 110 for further information about WESTERN PINE, pp. 19-22→

A. I. A. FILE No. 19-D-2

SEASONED

WOOD SIDING OFFERS UNSURPASSED VERSATILITY

Western Pine Region seasone
paint or stain readily. Their na
transmission. The strength and
wood sidings are thoroughly
woods. Specify WPA seasone
manence and appealing beauty

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SPECIES CHARACTERISTICS

CEDAR • RED CEDAR	PONDEROSA PINE • IDAHO WHITE PINE • SUGAR PINE WHITE FIR • ENGELMANN SPRUCE • LODGEPOLE PINE	DOUGLAS FIR • LARCH
with Redwood and Tidewater Red Cy- natural resistance to decay. Can be *ained or left unfinished with good results.*	Durable when used with proper construction practices. Not recommended for unfinished exposure.	Hardest of the Western Pine Region species. Have the greatest shock and abrasion resistance.
pronounced grain in these woods contribute to their ability to stay flat and stable with a minimum raising. For this reason, these species are not graded to vertical grain or flat grain. Mixed ay be confidently used.		Pronounced grain. May be ordered either vertical grain (v.g.) or *mixed* grain (m.g.), *Mixed grain most readily available.*
t. May be nailed close to ends. Recommend luminum or hot dipped galvanized nails ail heads are set and puttied.	Excellent. May be nailed close to ends. Recommend aluminum or hot dipped galvanized nails unless nail heads are set and puttied.	Recommend the use of blunt pointed nails to minimize splitting *near ends.*
to take paint or stain is exceptionally May be left unfinished and will weather tractive silver-grey.	Ability to take paint or stain is *excellent, whether rough or smooth textured. Minimum maintenance necessary.*	Less favorable painting characteristics than the less dense species (pines, spruce, cedars, white fir), *but quite satisfactory when properly covered.*

NS

BEVEL	BUNGALOW	DOLLY VARDEN	LOG CABIN	TONGUE AND GROOVE (T&G)
Rabbeted Edge vel may be used with smooth posed or sawn face exposed ured effect.	**Plain** **Rabbeted Edge** Thicker and wider than Bevel Siding. Sometimes called "Colonial." Plain Bungalow may be used with smooth face exposed or sawn face exposed for textured effect.	Thicker than Bevel Siding. Rabbeted edge only.		
Rabbeted Edge Recommend 1" minimum overlap on plain bevel siding. Use 6d Siding Nails as shown.	Same as for Bevel siding, but use 8d Siding nails.	Same as for Rabbeted Bevel Siding but use 8d Siding nails.	**Nail 1-1/2" up** from lower edge of piece. Use 10d Casing nails.	**Use 6d Finish** nails as shown for 6" widths or less. Wider widths, face nail twice per bearing with 8d Siding nails.
ter Siding: Top siding grade (e*) **g:** medium siding grade) **:** Recommended for economy only (Quality*)	**B & Better Siding:** Top siding grade. (Supreme*) **C Siding:** Medium siding grade. (Choice*) **D Siding:** Recommended for economy housing only. (Quality*)	**B & Better Siding:** Top siding grade. (Supreme*) **C Siding:** Medium siding grade. (Choice*) **D Siding:** Recommended for economy housing only. (Quality*)	**No. 2 Common & Better** Lumber species containing resinous knots should be primed with a proper sealer, such as WP-57B, aluminum paint or shellac to lengthen life of paint coat.	**No. 2 Common & Better** Lumber species containing resinous knots should be primed with a proper sealer, such as WP-57B, aluminum paint or shellac to lengthen life of paint coat.
in edge, 7/16" thick edge.	**9/32"** thin edge, **3/4"** thick edge.	a. **5/16"** thin edge, **9/16"** thick edge with **5/16"** rabbet. b. **13/32"** thin edge, **11/16"** thick edge with **13/32"** rabbet.	**1-1/2"** at thickest point.	**25/32"** dressed to pattern
" nominal d face of Plain with 1" lap, ess than nominal. Rabbeted, than nominal)	**8" to 10" nominal** (Exposed face of Plain with 1" lap, 1-3/8" less than nominal / Rabbeted, 7/8" less than nominal)	**6", 8", 10" nominal** (exposed width 1" less than nominal)	**6", 8", 10" nominal** (Exposed width 1" less than nominal)	**4" to 12" nominal** (Exposed width 3/4" less than nominal)
' in multiples of 6", shipped in lengths, heavy to longer .	**3' to 16'** in multiples of 6", shipped in random lengths, heavy to longer lengths.	**3' to 16'** in multiples of 6", shipped in random lengths, heavy to longer lengths.	**6' to 16'**, shipped in random lengths, heavy to longer lengths. May be ordered in specified lengths (small premium may be charged).	**6' to 16'**, shipped in random lengths, heavy to longer lengths. May be ordered in specified lengths (small premium may be charged).
shipped at **12%** or less e content.	Usually shipped at **12%** or less moisture content.	Usually shipped at **12%** or less moisture content.	Shipped **15%** moisture content when specified.	Shipped **15%** moisture content when specified.

daho

GRADING PRACTICES

Tear off here for filing

WESTERN PINE ASSOCIATION

SIDING • FRAMING • SHEATHING and SHEET-BOARD • DECKING
PANELING • FINISH • MILLWORK • MOULDINGS

WPA WOOD SIDING

	INCENSE CEDAR • RED CE
DURABILITY	Classed with Redwood press in natural resist *either stained or left unf*
STABILITY	Lack of pronounced gra of grain raising. For th grain may be confident
NAILING CHARACTERISTICS	Excellent. May be naile mend aluminum or hot unless nail heads are s
PAINTING OR STAINING *NOTE: Varnish, shellac, etc. not recommended for any wood siding exposed to direct rays of sun.	Ability to take paint good. May be left unf to an attractive silver-g

SIDING PATTERNS

	BOARD	CHANNEL RUSTIC	DROP	BEVEL
CHARACTERISTICS	Available surfaced or rough textured (see "thicknesses" below)		Available in 13 different patterns. Some T&G (As shown), others shiplapped. See WPA Standard Patterns G-16.	**Plain** **Rabbete** Plain Bevel may be used with face exposed or sawn face for textured effect.
APPLICATION AND NAILING	**Board & Batten** Recommend 1″ minimum overlap. Use 10d Siding nails as shown. **Board on Board** Recommend 1″ minimum overlap. Use 10d Siding nails as shown. **Clapboard** Recommend 1″ minimum overlap. Use 10d Siding nails as shown	(Board and Gap) May be applied horizontally or vertically. Has 1/2″ lap and 1-1/4″ channel when installed. Use 8d Siding nails as shown for 6″ widths, Wider widths nail twice per bearing.	**T&G Patterns** **Shiplap Patterns** Nail as shown for 6″ widths only. 6d Finish nails for T&G, 8d Siding nails for shiplap. Wider widths, face nail with 8d Siding nails for both patterns and nail twice per bearing.	**Plain** **Rabbete** Recommend 1″ minimum overlap on plain bevel siding. Use 6d Siding Nails as shown.
RECOMMENDED GRADE	**No. 2 Common & Better** Lumber species containing resinous knots should be primed with a proper sealer, such as WP-57B, aluminum paint or shellac to lengthen life of paint coat.	**No. 2 Common & Better** Lumber species containing resinous knots should be primed with a proper sealer, such as WP-57B, aluminum paint or shellac to lengthen life of paint coat.	**No. 2 Common & Better** Lumber species containing resinous knots should be primed with a proper sealer, such as WP-57B, aluminum paint or shellac to lengthen life of paint coat.	**B & Better Siding**: Top sidin (Supreme*) **C Siding**: medium siding gra (Choice*) **D Siding**: Recommended for e housing only (Quality*)
THICKNESSES	a. **25/32″ dressed 4 sides (S4S)** b. 11/16″ resawn: most economical buy is to order 6/4″ resawn to 11/16″. The two pieces are shipped together with one face smooth, one face rough textured. Either side may be exposed depending on effect desired. This same material may also be used for concealed shelving and other construction uses, including sheathing.	**25/32″ dressed to pattern.**	25/32″ dressed to pattern.	3/16″ thin edge, 7/16″ thick e
WIDTHS	**4″ to 12″ nominal** (actual width 3/8″ less than nominal)	**6″ to 12″ nominal** (exposed width 1″ less than nominal)	**6″ to 8″ nominal** (exposed face of T&G 3/4″ less than nominal/Shiplap, 1″ less than nominal)	**4″, 5″, 6″ nominal** (Exposed face of Plain with 1-1/2″ less than nominal. R 1″ less than nominal)
LENGTHS	**6′ to 16′** Shipped in random lengths, heavy to longer lengths. May be ordered in specified lengths (small premium may be charged.)	**6′ to 16′** Shipped in random lengths, heavy to longer lengths. May be ordered in specified lengths (small premium may be charged).	**6′ to 16′** Shipped in random lengths, heavy to longer lengths. May be ordered in specified lengths (small premium may be charged).	**3′ to 16′** in multiples of 6″, sh random lengths, heavy to lengths.
SEASONING	Shipped **15% moisture content** when specified.	Shipped **15% moisture content** when specified.	Shipped **15% moisture content** when specified.	Usually shipped at **12%** moisture content.

(*These grade names apply to Idaho White Pine only).

wood sidings are light; work easily with ordinary woodworking tools; take
l insulating quality provides bonus protection against heat, cold and sound
iffness of seasoned wood siding keeps on-site damage to a minimum. WPA
soned, rigidly graded, available in a wide variety of patterns in 10 different
wood siding for freedom of design, easier handling and working ease, per-

See inside for the complete facts on quality seasoned sidings

WESTERN PINE ASSOCIATION
QUALITY GRADED LUMBER

WPA

A. I. A. No. 19-D-2

PRODUCTS, EQUIPMENT, MATERIALS

Report of recent developments by industry, based on data furnished by manufacturers. Inquiry cards for further information face pages 1 and 60.

DOUBLE SKYLIGHT DOMES CUT HEAT LOSS/CONDENSATION

MFR'S DESCRIPTION: self-flashing skylighting dome, completely sealed, insulated; can be nailed directly to roof deck.

USES: interior natural lighting.

SPECS/FEATURES: double dome is all-acrylic. Domes and an aluminum nailing flange are bonded by a rigidly tested sealant. A uniform 1" hermetically sealed dead air space between domes acts as a thermal barrier and helps eliminate condensation. Domes offered in any combination of clear colorless, white translucent and reflective inner and outer domes. Sizes range from 20"x20" to 64"x96".

AIA FILE NO. 12-J

MFR: WASCO PRODUCTS DEPT., AMERICAN CYANAMID CO.

Circle 200 for further information

SKYLIGHTING PANELS OF STRUCTURAL PLASTIC

MFR'S DESCRIPTION: fiber glass sandwich construction of panels for use as skylights.

USES: interior and exterior structural plastics application.

SPECS/FEATURES: a line of plastic sandwich panels for use in outside walls, ceilings, dividers, skylights, table tops, doors, shower doors, screens, counters and numerous other applications. Used as skylight panel, manufacturer says it provides soft, diffused light plus good temperature and condensation control.

AIA FILE NO. 24/24-F

MFR: GLASS LAMINATORS, INC.

Circle 201 for further information

FIRE-RETARDANT POLYURETHANE FOAM

MFR'S DESCRIPTION: fire-retardant polyurethane plastic foam manufactured of slab stock and molded shapes.

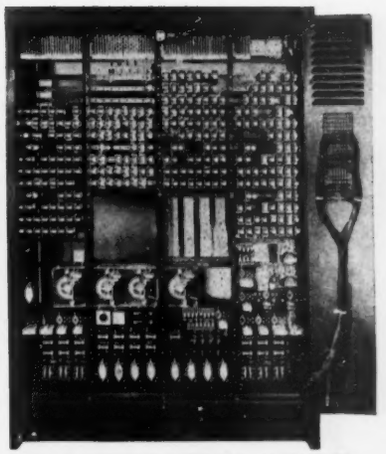
USES: structural insulation.

SPECS/FEATURES: in production of curtain wall construction panels foam is sandwiched between steel sheets. New foam systems combine inherent fire-retardance through inclusion in the molecular structure of chlorine-rich acids. A low *K* factor of about 0.12 at 75° F is combined with dimensional stability in a wide range of temperatures and humidity. Foam designed not to distort even at temperatures over 200° F.

AIA FILE NO. 24-D

MFR: DUREZ PLASTICS DIV., HOOKER CHEMICAL CORP.

Circle 202 for further information



COMPUTER-CONTROL SYSTEM FOR AUTOMATIC ELEVATORS

MFR'S DESCRIPTION: automatic control system which reduces average waiting time for elevators as much as 30 per cent.

USES: commercial.

SPECS/FEATURES: system, called *Selectomatic Mark IV*, is suited for all types of large buildings with heavy and erratic traffic conditions, including office buildings, department stores, hotels, hospitals and large apartment houses. System is programmed to handle an unlimited number of different traffic conditions. It responds instantaneously to any traffic demand regardless of location or direction, according to manufacturer. System is controlled by an electronic scanning device and an

←Circle 110 for further information about WESTERN PINE, pp. 19-22

IF YOU DESIGN LOADING DOCKS

you'll want this **free** booklet

"FACTS, FIGURES, IDEAS for designing Loading Docks" gives specific information on: • General Design Standards for Dock and Terminals • Methods of Bridging the Gap between Dock and Truck • Methods of Dock Pit Construction • Weight and Size Restriction by States for Trucks and Trailers • Unit Loading • Comparison of Unloading Time • Selecting the Right Size Ramp • as well as many other ideas on Loading Docks you'll want for your next dock layout.

AMERICAN DOCKBRIDGE, INC.

Please send me your FREE Facts, Figures, Ideas booklet.

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Company

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City Zone State

233 West Oklahoma Ave., Milwaukee 17, Wis.

Circle 111 for further information

electronic computer. Sensing device records every traffic demand, length that time demand has been registered, and load of individual cars. This information is fed into computing device, which dispatches cars to answer calls according to demand existing at a particular moment. When there is no demand for a car it will stop at floor where it has discharged last passenger and wait for next demand.

AIA FILE NO. 33-A/B

MFR: WESTINGHOUSE ELECTRIC CORP.

Circle 203 for further information

LIGHTWEIGHT DOMES OF GEODESIC DESIGN

MFR'S DESCRIPTION: geodesic dome specially designed for fast "on-site" construction, using lightweight panels.

USES: industrial and military.

SPECS/FEATURES: domes are assembled from triangular sections of light, sturdy *Fomecor* board—heavy-duty 69 pound kraft stock laminated to both sides of ½" sheets of rigid plastic foam. Each section is individually dipped in a plastic-based coating for weatherproofing. Dome assembly is with bolts and can be done by about three persons. Dome provides about 350 sq. ft. of floor space and 3,000 cu. ft. of usable shelter. Item was developed for use as storage, field service facilities, low-cost housing and shelter, and emergency purposes. Item is extremely lightweight and costs about $350.

AIA FILE NO. 36-A

MFR: FILTERED ROSIN PRODUCTS CO., DIV., OF MONSANTO CHEMICAL CO.

Circle 204 for further information

IMPROVED URETHANE FOAM FOR SUB-TEMPERATURE USE

MFR'S DESCRIPTION: urethane insulating foam providing dimensional stability at sub-zero temperatures in a low-density formulation.

USES: insulating sub-zero temperatures.

SPECS/FEATURES: foam provides, according to manufacturer, good structural strength and dimensional stability and has a *K*-factor of 0.13. New foam eliminates shrinkage—formerly a problem in sub-zero applications. A pour-in-place rigid foam formulation, item eliminates collapse of cell walls at and below zero degrees caused by drastic condensation of entrapped gas. Formulation affords greater strength in each cell wall and better over-all homogeneity in foam structure, to help eliminate shrinkage while permitting relatively low density.

AIA FILE NO. 37-D-1

MFR: PLASTICS DIV., NOPCO CHEMICAL CO.

Circle 205 for further information

PLASTIC AND ASPHALT WATERPROOFED LINER

MFR'S DESCRIPTION: new mat-type liner of plastic and asphalt for general waterproofing.

USES: general control of liquids and vapor, and for soil isolation of structures.

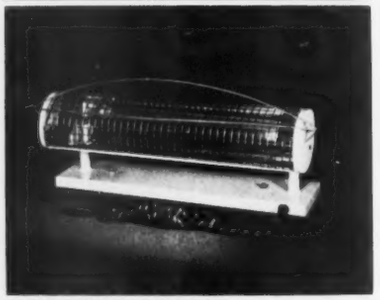
SPECS/FEATURES: liners are manufactured in sheet form consisting of a seamless polyvinylchloride plastic sheet bonded to asphalt and highly saturated felt coverings. Exterior surfaces of material are coated with additional asphalt for maximum weather resistance. Use of both asphalt and plastic in liner, according to manufacturer, provides a durable material with weight and substance of asphalt that is easy to place without punctures or tears. Liners are nominally ⅛" thick and presently available in sheets 4' wide, lengths up to 15', and weigh ¾ lbs per sq. ft.

AIA FILE NO. 37-E-1

MFR: W. R. MEADOWS, INC.

Circle 206 for further information

HVAC



INFRA-RED HEATER PORTABLE UNIT

MFR'S DESCRIPTION: self-standing (or wall position), portable heating fixture weighs 4 lbs, measures 19"x5"x 9".

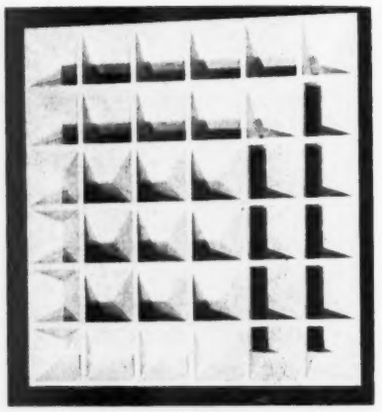
USES: interior and exterior spot heating.

SPECS/FEATURES: heater utilizes a fused quartz element. Designed with use of semi-parabolic shaped reflectors and end reflectors which are stated to help insure optimum coverage. When unit is tilted slightly, or inverted, an automatic shut-off button on bottom of unit cuts electrical current.

AIA FILE NO. 31-K-3

MFR: APEXTRO PRODUCTS CO.

Circle 207 for further information



MODULAR PLASTIC AIR DIFFUSERS

MFR'S DESCRIPTION: modular plastic air diffusers.

USES: air treatment systems.

SPECS/FEATURES: diffusers are designed for same duties as present metal diffusers in air conditioning and heating systems. Self-extinguishing polycarbonate plastic used in diffuser gives advantages of high heat resistance, integral color, lighter weight and greater design flexibility, manufacturer says. Price of these plastic diffusers is competitive with those of metal, according to company officials. Module needs no painting or other finishing. High impact strength is also a feature.

AIA FILE NO. 30-J

MFR: CARNES CORP.

Circle 208 for further information

NEW MODEL LINE IN COOLING TOWER

MFR'S DESCRIPTION: new size economy model cooling tower with horizontal double-fan discharge.

USES: cooling installations.

SPECS/FEATURES: cooling tower has a nominal rating of 120 tons, based on a capacity of 360 gallons of water per minute, at 95° F entering water temperature, 85° F leaving water temperature, and 78° F wet bulb temperature. Double fans draw air from open back of tower through wetted deck surface and help efficiency through more even air distribution. Low-speed, deep-pitch propeller fans help obtain quiet operation. Model is shipped assembled but where rigging is a problem may be quickly disassembled and re-assembled again at job-site. Over-all

width is 144", over-all length 89" and over-all height 88½".
AIA FILE NO. 30-F-3
MFR: HALSTEAD & MITCHELL CO.
Circle 209 for further information

CONTINUOUS AIR FLOW IN HEATING SYSTEM

MFR'S DESCRIPTION: heating system with a design that helps solve the problem of changing air flow patterns.
USES: residential heating.
SPECS/FEATURES: with system, air flows in a complete circulation around rooms with blower on and continues more slowly when blower is off, circulating up one wall, across ceiling, down other wall and across floor. Both supply and return grilles are in same register. Net result claimed by manufacturer is very even floor-to-ceiling temperature variation, and no noticeable variation due to intermittent operation of blower.
AIA FILE NO. 30-B-1
MFRS JET-HEET, INC.
Circle 210 for further information

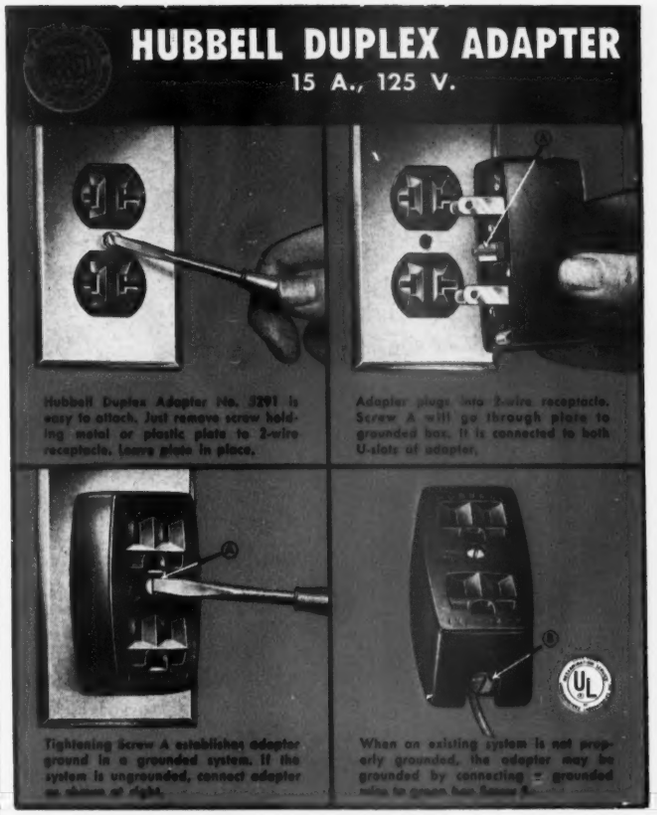
PLASTIC USES

VINYL INFLATED DOME IS PRE-FABRICATED

MFR'S DESCRIPTION: 20' diameter, 15' high, transparent "air-bubble dome."
USES: promotional buildings, temporary storage building, sun port and greenhouse.
SPECS/FEATURES: company says dome is completely pre-fabricated with all needed components and that structure can be raised in less than one day. Total shipping weight is 73 lbs. Only 5 lbs. of air pressure maintains a "drumhead tight" bubble, according to a company statement. Solar heat rays provide an inside temperature of 35° F to 40° F higher than outside winter temperatures. Ventilation for summer use is provided with motor and pump. Air conditioning can also be installed. Two models of doors, either 30" or 60" wide are available. Building retails for approximately $300.
AIA FILE NO. 24
MFR: CRYSTAL-X CORP.
Circle 211 for further information

PLASTIC FORMING PANS FOR WAFFLE-SLAB WORK

MFR'S DESCRIPTION: newly engineered molded fiber glass concrete forming pan.
USES: waffle-slab molds for concrete.
SPECS/FEATURES: pans are molded of reinforced polyester. Various dimensions available according to need of architect. Pans are non-rusting, non-corrosive, non-denting with a high resistance to eroding effects of water, alkali, and abrasive contact with con-


HUBBELL DUPLEX ADAPTER
15 A., 125 V.
Hubbell Duplex Adapter No. 5291 is easy to attach. Just remove screw holding metal or plastic plate to 2-wire receptacle. Leave plate in place.
Adapter plugs into 2-wire receptacle. Screw A will go through plate to grounded box. It is connected to both U-slots of adapter.
Tightening Screw A establishes adapter ground in a grounded system. If the system is ungrounded, connect adapter as shown at right.
When an existing system is not properly grounded, the adapter may be grounded by connecting a grounded

FAST TEMPORARY CONVERSION TO 3-WIRE GROUNDING SAFETY

This polarized, plug-in adapter converts 2-wire duplex receptacles used with grounded or ungrounded systems to temporary 3-wire grounding receptacles. The electrically independent blades and contacts continue existing split circuits.

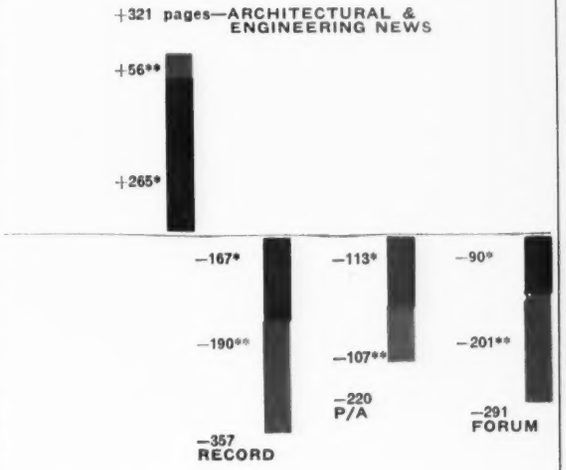
Operates in any parallel or T-slot duplex receptacle and with metal or plastic cover plates. In brown or ivorine bakelite, for 15 amperes, 125 volts. Size: 1.4" from plate, 3.3" high, 1.75" wide. Catalog No. 5291.

KEEP PACE WITH ELECTRICITY

HARVEY
HUBBELL
INCORPORATED
Bridgeport 2, Connecticut

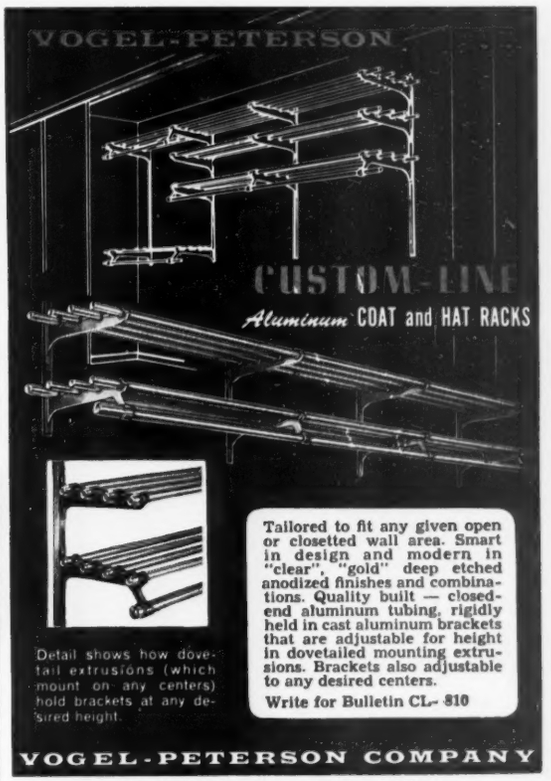
In Canada: Scarborough, Ontario
Circle 112 for further information

ADVERTISING PAGE GAINS AND LOSSES
ALL ARCHITECTURAL MAGAZINES
1960 vs. 1959*
First 5 months 1961**



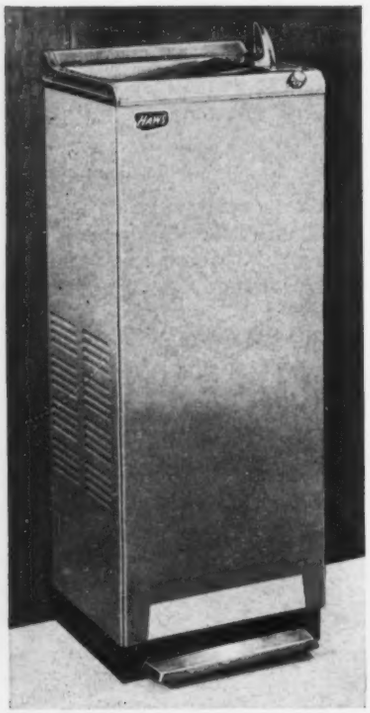
17 month cumulative loss of RECORD, P/A and FORUM—868 pages

Source: INDUSTRIAL MARKETING

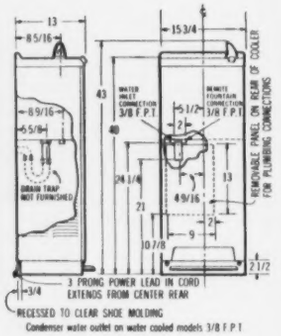

VOGEL-PETERSON
CUSTOM-LINE
Aluminum COAT and HAT RACKS
Detail shows how dovetail extrusions (which mount on any centers) hold brackets at any desired height.
Tailored to fit any given open or closetted wall area. Smart in design and modern in "clear", "gold" deep etched anodized finishes and combinations. Quality built — closed-end aluminum tubing, rigidly held in cast aluminum brackets that are adjustable for height in dovetailed mounting extrusions. Brackets also adjustable to any desired centers.
Write for Bulletin CL-810
VOGEL-PETERSON COMPANY

RT. 83 & MADISON ST., ELMHURST, ILLINOIS
Circle 113 for further information

THE NEATEST WATER COOLER OF THEM ALL!...IT'S HAWS NEW "WALL-FLUSH" MODEL!

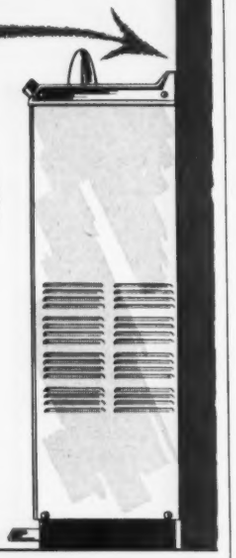


Smart styling? Surely! But *more* than that, you can now streamline interiors with this trim floor model cooler that fits snug to the wall. That's right: no waste space. Just like a "built-in"—neat, trim, clean; this HAWS design has you (the Architect) in mind. Cool, refreshing water dispensed through a perfectly styled cooler. And it's by HAWS!



HAWS HWF Series: available in varying capacities to meet your traffic needs.

Neater, cleaner!
No waste space!
FLUSH-TO-WALL!



Send for detailed spec sheets on these HAWS "HWF Series" models. They can be another plus-feature *for your next project. And see the complete water cooler line in HAWS comprehensive catalog.*

HAWS ELECTRIC WATER COOLERS

Products of **HAWS DRINKING FAUCET COMPANY**
1441 Fourth Street, Berkeley 10, California
Export Dept: 19 Columbus Ave., San Francisco 11, California

Circle 114 for further information

crete. Pans are said to be true to size and hold these dimensions during use. Pans come ready to use and are merely held in place by a broad-headed nail at each corner. After use, pans require no sanding or cleaning to remove concrete.
AIA FILE NO. 4-D
MFR: MOLDED FIBER GLASS CO.
Circle 212 for further information

FIBER GLASS SKYLIGHT IN SANDWICH PANEL

MFR'S DESCRIPTION: new, insulated all glass fiber skylight.
USES: roof construction.
SPECS/FEATURES: item features a light transmitting sandwich panel with a grid core design in translucent plastic. Unlike opaque core materials, manufacturer says, grid design provides soft and diffused light without sharp shadows. Absence of metal in core or mounting frame materially increases insulation effectiveness of assembly and interior edge condensation is eliminated. Manufacturer states that entire assembly is technically homogeneous, and is capable of roof loads in excess of normal requirements. Units require no mechanical fastening and are bonded to curb or roof deck. Item is available in panels up to 4' x 20'.
AIA FILE NO. 12-J
MFR: ARCHITECTURAL PLASTICS CORP.
Circle 213 for further information

VINYL COATED NYLON FABRIC FOR AIR SUPPORTED BUILDINGS

MFR'S DESCRIPTION: new vinyl coated fabric with a high resistance to tearing.
USES: air-supported construction.
SPECS/FEATURES: manufacturer claims fabric has ten times the tear resistance normally obtained by fabrics of approximately the same cost and weight. Fabric was designed in order to allow construction of air-supported buildings of larger size than now used. Item has been used for grain storage, exhibits and art centers.
AIA FILE NO. 24/17-A
MFR: FARRINGTON MANUFACTURING CO.
Circle 214 for further information

REINFORCED GLASS FIBER POLYESTER SKYLIGHT

MFR'S DESCRIPTION: application of *Hetron*, a self-extinguishing resin, for low-cost, fire-retardant natural lighting installations.
USES: residential, commercial and industrial.
SPECS/FEATURES: fire-retardant skylights and accessories intended for use in fire-hazard areas and in localities where building codes specify flame-inhibiting units. Skylights made of this polyester resin are self-extinguishing once the source of flame is removed. Skylights are shatter-proof and crack-proof, available in a variety of sizes and shapes. They can be made to harmonize with almost any color scheme, and are available in blue, yellow, green, pink, and mist white, either single or double domes.
AIA FILE NO. 12-J
MFR: DUREZ PLASTICS DIV., HOOKER CHEMICAL CORP.
Circle 215 for further information

SEALS/COATINGS

EXTRUDED SEALERS WITH RUBBER BASE

MFR'S DESCRIPTION: two extruded rubber base sealers with a cross sectional design that helps sealing of uneven or tapered joints, and corners.
USES: sealing between surfaces.
SPECS/FEATURES: hollow sealer permits greater compression in uneven seams while solid sealer has better void filling characteristics for wider seams. Sealers act as a rubbery gasket when pressed into a seam and tightened between sealing surfaces. Because of double doughnut cross sectional design sealers will conform and provide seal around corners without need for splicing or special fitting.
AIA FILE NO. 17-J
MFR: MINNESOTA MINING & MANUFACTURING CO.
Circle 216 for further information

LAMINATION PROCESS FOR FINISHING WOOD

MFR'S DESCRIPTION: process combines appearance of real and simulated wood with protection advantages of plastic surfaces.
USES: lamination and finishing of wood products.
SPECS/FEATURES: laminating system utilizes both decorative and clear paper impregnated with a diallyl phthalate resin. Process permits lamination of transparent plastic surfaces directly to veneered materials in a single operation. Flow of plastic resin into the substrata is said to help bring out richness of veneer grain. According to manufacturer, laminate withstands heat, chemicals, and moisture as well as chlorine

bleaches, nail polishes, and dyes; it is said to be resistant to fire and cigarette burns.
AIA FILE NO. 23-D-24
MFR: FOOD MACHINERY & CHEMICAL CORP.
Circle 217 for further information

SELF-PRIMING EPOXY COATING

MFR'S DESCRIPTION: protective coating which can be sprayed, rolled or brushed onto any type surface under all weather conditions.
USES: materials finishing.
SPECS/FEATURES: coating for application to wood, plastic, concrete, brick, glass, aluminum, transite and exotic metals. Material available in 20 colors. Coating tested for use in range from −73° F to 250° F. Coating contains plastic "membrane" which eliminates need for extra coatings. Item is resistant to moisture, salt water, corrosive liquids and gases. Also prevents chipping, cracking and peeling, manufacturer says. In addition, company claims coating has a long pot life.
AIA FILE NO 25-B-3
MFR: BRADCO PLASTICS, INC.
Circle 218 for further information

COATING FOR DEFECTS IN MASONRY SURFACES

MFR'S DESCRIPTION: coating designed for spray application to cover defects in masonry applications.
USES: residential, commercial and industrial.
SPECS/FEATURES: coating primes, fills and textures masonry surfaces. Can be used on exteriors; also on interiors below grade where condensation is a problem. Masonry paint may be mixed with coating, or surface can be painted after application. Coating is available in medium or coarse textures and packaged in 25 lb. bags.
AIA FILE NO. 4-P-1
MFR: WESTERN MINERAL PRODUCTS CO.
Circle 219 for further information

SEALING MATERIAL OF PLASTIC/ASPHALT

MFR'S DESCRIPTION: watertight material of polyurethane plastic foam impregnated with asphalt.
USES: sealing and caulking.
SPECS/FEATURES: material for application as concrete expansion joints, curtain wall buildings, window frames, glazing and corrugated sheets. Material in order to be watertight must be held under compression, and in this condition will build a strong bond to surfaces of almost any material. Item will conform to every irregularity on an uneven surface, and a joint can be so designed that an expansion of 100 per cent is possible without loss of sealing efficiency. Material is chemically inert

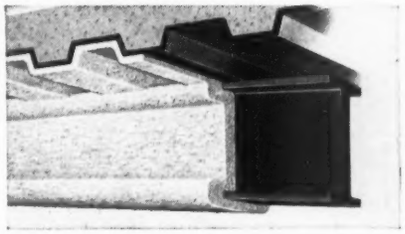
TEXACO OFFICE BUILDING
Architect—Welton Becket & Associates, Architects and Engineers
General Contractor—Del E. Webb Construction Co.
Plastering Contractor—George M. Raymond Co.
Material used: Zonolite Acoustical Plastic and Zonolite Plaster fireproofing.

IBM OFFICE BUILDING
Architect—Charles Luckman Associates (successor to Pereira & Luckman)
General Contractor—McNeil Construction Co.
Plastering Contractor—Travis Corporation
Material used: Zonolite Plaster fireproofing.

3540 TISHMAN BUILDING
Architect—Victor Gruen Assoc., Architecture and Engineering
General Contractor—Tishman Realty and Construction Co.
Plastering Contractor—Martin Bros.
Material used: Zonolite Plaster fireproofing.

TRAVELERS INSURANCE OFFICE BUILDING
Architect—Welton Becket & Associates, Architects and Engineers
General Contractor—George A. Fuller Company
Plastering Contractor—A. D. Hoppe Co.
Material used: Zonolite Mono-Kote direct-to-steel decking fireproofing; Zonolite Plaster for fireproofing columns, shafts, stairwells.

Why the trade is calling this "ZONOLITE ROW"



All the high-rise buildings along this section of Wilshire Boulevard in Los Angeles were done by famous architects. All are protected with Zonolite fire-proofing products.

Latest addition (now under construction) is the Travelers Insurance Companies' Office building, where steel is fire-protected with new Zonolite Mono-Kote.

Mono-Kote sprays on, sets firm, dries fast and fissure-free. It bonds to steel at 400 psf., withstands extreme temperature and humidity changes.

Investigate the smooth-spraying, trouble-free advantages of Mono-Kote and you'll use it on your next job. Write:

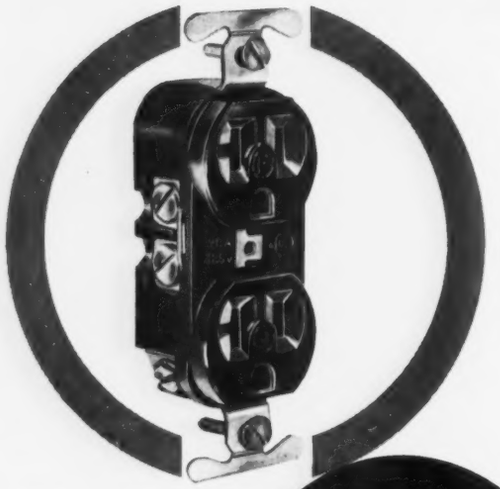
ZONOLITE COMPANY
135 South LaSalle Street • Chicago 3, Illinois
Circle 115 for further information

NEW

CIRCLE F

20-AMP

"U"-GROUND DEVICES



. . . Section 220-3 (b) of the 1959 National Electrical Code states . . .

"For the small appliance load in kitchen, laundry, pantry, dining room and breakfast room of dwelling occupancies, (1) 2 or more 20-ampere branch circuits in addition to the branch circuits specified in paragraph 220-3 (a) shall be provided for all receptacle outlets (other than outlets for clocks) in these rooms, and such circuits shall have no other outlets."

Designed to provide full compliance with the revised Code, Circle F's *new* No. 2532 does much more! It becomes a "universal" outlet! It accommodates appliances, heavy-duty portable tools, business machines, etc., having substantial energy requirements, where the new 20 A.-125 V. plug cap (No. 2528) is necessary. It also accommodates 15 A.-125 V. 3 wire U-ground and standard parallel blade caps. One outlet for all! Circle F's quality is tops and the price is right. Contact your Circle F representative for complete details.

CIRCLE F MFG. CO.

TRENTON 4. NEW JERSEY

Circle 116 for further information

and can be used in temperatures ranging from −55° F to 160° F.
AIA FILE NO. 7-D
MFR: ASBITON WESTERN INC.
Circle 220 for further information

COLORED VINYL COVERING MATERIAL

MFR'S DESCRIPTION: a plasticized semi-rigid synthetic resin securely adhered to a cotton lining.
USES: commercial and industrial.
SPECS/FEATURES: material may be bonded to metal or practically any type of clean surface with standard glue and cement. Covering is .045" thick and weighs approximately 32 ounces per square yard. Material is sufficiently flexible to be supplied in rolls but not considered suitable by manufacturer for bending around small radii. Rolls range from 36" to 52" in width, and in lengths from 25 to 250 yards. A wide range of colors and embossed surface textures is available. Potential applications include floor runners and wainscotting in public and commercial buildings.
AIA FILE NO. 19-J
MFR: BARLEY-EARHART CORP.
Circle 221 for further information

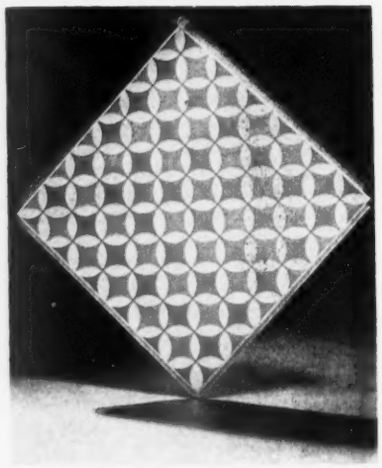
BRUSH-ON COATING REDUCES SLIPPERY SURFACE HAZARDS

MFR'S DESCRIPTION: a special, easily applied finish to reduce hazards of wet, slippery surfaces.
USES: industrial and military.
SPECS/FEATURES: applied with a brush, like ordinary paint, finish is available in two formulas. Type 1 produces a surface rougher than paint with good non-slip properties. Type 2 includes an abrasive for added security. Both available in white and colors, in quarts, gallon and 5 gallon pails. Recent military applications include walking edges of a large aircraft's wings and on cat walks to help protect crew and maintenance men. Industrial applications include cat walks, truck docks, stairs, walks, and shower stall floors.
AIA FILE NO. 25-B-36
MFR: AKRON PAINT & VARNISH CO.
Circle 222 for further information

LAMINATE OF ALUMINUM AND VINYL PLASTIC FILM

MFR'S DESCRIPTION: aluminum sheet and vinyl plastic film wedded in a new standard laminate.
USES: any lamination applicable to aluminum sheet.
SPECS/FEATURES: laminate available in range of coatings, embossed and printed with up to five colors. Offered in 39 design-color combinations, or with any commercially available vinyl plastic film, or with designs specially developed for architects. Can be used in drawn, roll formed, corrugated, punched, embossed, expanded, and perforated form. Wall panels are expected to be a major application.
AIA FILE NO. 15-J, 24-B
MFR: ALUMINUM CO. OF AMERICA
Circle 223 for further information

CEILINGS



NEW CEILING TILE LINE FOR COMMERCIAL INTERIORS

MFR'S DESCRIPTION: ceiling tile designed for commercial interiors with traditional decorating themes.
USES: commercial.
SPECS/FEATURES: pattern consists of a series of interlocking circles, coordinated from tile-to-tile to help create a free-flowing appearance which de-emphasizes the individual tile outline. Pattern is printed in two shades of gray. Available in standard 12"x12"x½" size, and is equipped with tongue-and-groove edges.
AIA FILE NO. 23-G
MFR: ARMSTRONG CORK CO.
Circle 224 for further information

RANDOM PATTERN IN CEILING TILE

MFR'S DESCRIPTION: *Caprice* pattern of fiberboard ceiling tile derived from Early American stencil motifs.
USES: residential and commercial.
SPECS/FEATURES: pattern designed to help de-emphasize tile joint lines and lend visual variety to ceilings. *Caprice* is four patterns in one. Six geometric symbols are arranged at random in four separate but similar patterns. Cartons of this pattern contain a quantity of each pattern. During ceiling application, tiles are intermixed freely to provide an over-all random effect. To suit personal color preferences, tile is available in warm, neu-

tral and cool pastel combinations. Tiles are ½"x12"x12".
AIA FILE NO. 23-L
MFR: CELOTEX CORP.
Circle 225 for further information

FURNISHINGS

"L" SHAPED UNIT DRAFTING TABLE/DESK

MFR'S DESCRIPTION: combination desk and drafting table.
USES: drafting rooms, architect's and engineer's offices.
SPECS/FEATURES: drafting table has toe-touch pedals that give complete control from a seated position of every board height from 30" to 45" and any angle from 0° to 90°. Drafting surface is non-glare, washable, resilient and self-sealing. One side of the "L" unit is a desk with a color-harmonized, plastic desk top with large, shallow, tool and catalog drawers. Modern styled tubular legs have floor leveling devices and there are three electrical outlets. Drafting table is available without desk.
AIA FILE NO. 35-H-3
MFR: STACOR EQUIPMENT CO.
Circle 226 for further information

NEW PRESTIGE LINE IN OFFICE FURNITURE

MFR'S DESCRIPTION: line of prestige office furniture combining wood and steel.
USES: offices.
SPECS/FEATURES: all working parts of desk can be equipped with full progressive suspensions. Full-metal pedestal is square edge in design and comes equipped in three-drawer, four-drawer or a box and file drawer combination. Tops are five-ply construction with walnut veneer tops, self-edged. Pedestals are located to provide greater knee space. Desk panels consist of aluminum mesh framed with walnut. Standard finish on square legs is nickel-plated. For additional stylized treatment desk tops can be provided with full width inward bevels along rear edge.
AIA FILE NO. 28-A-1/5
MFR: REMINGTON RAND SYSTEMS
Circle 227 for further information

WALL MOUNTED SAND URN

MFR'S DESCRIPTION: aluminum sand urn with simple design and wall-mounting feature.
USES: commercial.
SPECS/FEATURES: aluminum, wall mounted sand urn, designed to blend with contemporary decor in modern buildings. Urn measures 12" high by 6" in diameter and is available in solid or combined finishes of natural satin, black anodized and gold anodized aluminum.
AIA FILE NO. 35-J-43
MFR: LAWRENCE METAL PRODUCTS
Circle 228 for further information

FIRE-PROOFED FILE AND OFFICE SAFE

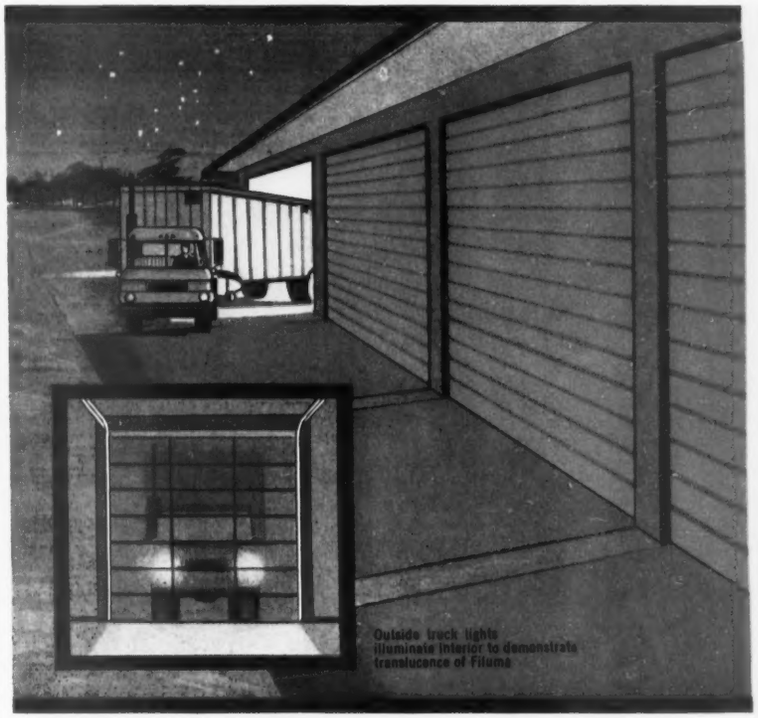
MFR'S DESCRIPTION: insulated filing cabinet added to company's line of insulated products.
USES: offices.
SPECS/FEATURES: unit designed for use in modern offices with certified protection of vital records. Unit features insulated monolithic construction, 99 per cent desert dry, gripped internally by wire mesh, and encased in steel. File cabinet is certified fireproof by several testing laboratories. Unit is available with legal or letter sized drawers in two, three, or four drawer file cabinets.
AIA FILE NO. 35-H-42
MFR: REMINGTON RAND SYSTEMS
Circle 229 for further information

FOLDING CHAIRS IN NEW SERIES

MFR'S DESCRIPTION: manufacturer's new commercial series in its line of folding chairs.
USES: mobile seating.
SPECS/FEATURES: folding chair line with ten metal frame and 15 vinyl upholstery color combinations; custom colors and combinations available on special order. Both seat and back of chair are shaped identically. When chair is folded for storage both upholstery surfaces are fully protected by seat and back panels. Each model folds to 2½". Seat and back areas are angled for correct posture to increase comfort and help overcome fatigue. A chapel model for religious use has a kneeling platform.
AIA FILE NO. 28-A-7
MFR: BREWER-TITCHENER CORP.
Circle 230 for further information

FILUMA® *Fiberglass-Aluminum Extension Spring Doors*

Performance-proved translucent overhead type door for commercial and industrial use



- *Clean lines for modern building design*
- *Lets light in like a skylight*
- *Saves window installations*

Filuma is winning increased preference by operators and builders of many kinds of business and types of construction for these reasons: *Translucence*—light floods in to vastly improve working conditions. *Light weight*—only one-third that of wood doors . . . a much smaller power unit can operate the largest sizes. *Modern materials*—reinforced fiberglass panels, in a sculptured design, are encased in tempered extruded aluminum with reinforcing rails for all sizes. *Durable and maintenance free*—will not split, impervious to corrosion. Shatterproof, shrinkproof, weatherproof. Never needs painting. Hoses clean. *Custom made* to fit door openings up to 14′ high or 16′ wide. *Five colors*—white, yellow, green, tan, coral. Trained installation not required. Filuma is nationally distributed through lumber yards and building supply dealers.

SWEETS 16i/FRA

FRANTZ

FILUMA IS A PRODUCT OF
FRANTZ
MANUFACTURING COMPANY
STERLING, ILLINOIS

Manufacturers of Over 100 Sizes and Styles of Sectional and One-Piece Overhead Type Doors for Residential, Commercial, and Industrial Application. Extension and Torsion Spring.

Circle 117 for further information

PRODUCTS, EQUIPMENT, MATERIALS

NEW SCHOOL BUILDING COMMUNICATIONS SYSTEM

MFR'S DESCRIPTION: new compact line of school communications systems.
USES: educational and institutional.
SPECS/FEATURES: systems consist of four models in two styles of metalware (table top and console). Each system provides executive two-way communication; audio educational facilities for all classes utilizing an AM-FM radio tuner or a four-speed record player, and all-call service in emergencies. System can be expanded to 48 rooms and areas.
AIA FILE NO. 31-i-1
MFR: DUKANE CORP.
Circle 231 for further information

COMBINATION SCHOOL DESK SERVICES MULTIPLE FUNCTIONS

MFR'S DESCRIPTION: multi-function school desk with a trapezoidal shaped top.
USES: institutions and education.
SPECS/FEATURES: combination chair-desk usable as a work and seating area, or can be clustered in groups of four for team work. Desk surface designed to fit a cafeteria tray, and adaptable to lunchrooms for this purpose. Many grouping possibilities make it easier to place a larger number of desks in a given area.
AIA FILE NO. 35-D-3
MFR: BRUNSWICK CORP.
Circle 232 for further information

FOLDING BLEACHERS WITH BACKREST

MFR'S DESCRIPTION: mechanical folding bleachers that have backrests as part of their design and construction.
USES: recreation spectator seating.
SPECS/FEATURES: bleachers feature aluminum backrest as integral part of system. Bleachers available with seats and backs padded with cloth-backed vinyl fabric over foam rubber pads in a variety of colors. For continuous automatic operation, bleachers are available with an electric drive. Seat or backrests are replaceable, if damaged.
AIA FILE NO. 35-F-11
MFR: BERLIN CHAPMAN CO.
Circle 233 for further information

FIRE ALARM SYSTEMS WITH SIMPLIFIED DESIGN

MFR'S DESCRIPTION: fire alarm stations designed with an eye to aesthetic appeal as well as functional performance.
USES: commercial, institutional and industrial.
SPECS/FEATURES: models include non-code, closed-circuit, supervised systems, plain-code supervised systems, and shunt non-interfering, coded supervised systems. System can be tailored to meet individual requirements of industrial, commercial and public buildings. In addition, manufacturer has developed a line of pre-engineered modular systems for more complex applications where intricate dovetailing of extensive fire alarm networks is required. Compact models are pre-wired and ready for installation in most buildings.
AIA FILE NO. 31-i-31
MFR: FARADAY INC.
Circle 234 for further information

LIGHTING

PLASTIC-ENCLOSED FLUORESCENT FIXTURE

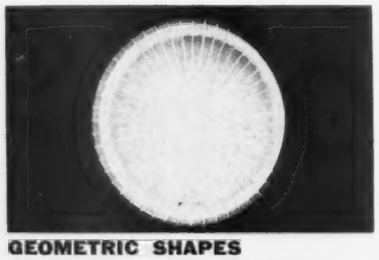
MFR'S DESCRIPTION: fluorescent fixture designed to aim light directly downward.
USES: commercial and educational.
SPECS/FEATURES: fixture features twin lamp chambers and optically designed prismatic lenses that direct most of light downward and away from the 45°-90° viewing zone. Fixture available in 4′ and 8′ lengths with a choice of clear, *Acrylic* or *Polystyrene* lenses. Item can be used individually or in continuous rows, and is 13⅜₁₆″ in width. Lamp is enclosed by a self-hinging plastic lens which is supported by continuous flanges on the channel. Designed primarily for surface mounting, fixture can also be suspended.
AIA FILE NO. 31-F-23
MFR: THE MILLER CO.
Circle 235 for further information

SHALLOW TROFFERS FOR SUSPENSION CEILINGS

MFR'S DESCRIPTION: shallow "flange type" troffers for concealed mechanical suspension ceilings.
USES: interior illumination.
SPECS/FEATURES: units are of dieformed heavy gauge steel with an over-all depth of 4⅜″. Door frame has invisible hinges and latches which may be hinged from either side of fixture body or removed completely. Unit is available in two, four, six and eight lamp models for either rapid start or slim-line. Four widths are available with lengths of either 4′ or 8′. Reflectance factor is said to be not less than 86 per cent.
AIA FILE NO. 31-F-23
MFR: GOOD MANUFACTURING CO., INC.
Circle 236 for further information

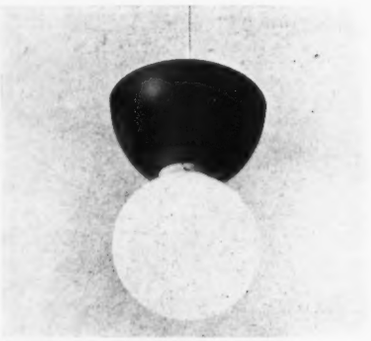
HAND RAIL FOR STAIRS WITH BUILT-IN LIGHTING

MFR'S DESCRIPTION: illuminated handrailing for lighting of stairways and passageways.
USES: institutional and commercial.
SPECS/FEATURES: lighting fixture built into tubular enclosure on lower part of handrail. Constructed of cast and extruded aluminum with arcylic shielding media. Designed to be immune to weather and human handling. Lighting achieved with fluorescent bulbs in lengths from 2′ to 8′. Available in aluminum or bronze finishes.
AIA FILE NO. 31-F-2
MFR: ENDER-MONARCH CORP.
Circle 237 for further information



GEOMETRIC SHAPES IN INCANDESCENT LIGHTING

MFR'S DESCRIPTION: glowing geometric shapes combining light source and surface decoration in one unit.
USES: residential and commercial.
SPECS/FEATURES: shapes are hexagonal, round, square and rectangular and designed for use individually or in combinations to create patterns of light by varying number and arrangements of shapes. Diameters vary according to shape, but all units are 3½″ deep and can be used in 28 various pattern combinations. Units can be mounted to any standard electrical outlet box. Elements are water proof and all exposed metal parts are constructed of black enameled aluminum.
AIA FILE NO. 31-F-23
MFR: PRESCOLITE MANUFACTURING CORP.
Circle 238 for further information



FIXTURE DIRECTS LIGHT UP AND/OR DOWN

MFR'S DESCRIPTION: fixture with simple combination of two geometric shapes for lighting ceiling and floor.
USES: commercial.
SPECS/FEATURES: hemisphere conceals three reflector bulbs mounted on swivel bases, which can be directed for concentrated ceiling illumination in any direction. Glass sphere alone casts a diffused but direct downlight, casting light down and to all sides. Metal hemisphere available in white, red, blue, yellow, sprayed brass or polished aluminum. Stem available in white, brass or chrome. Fixture available in three sizes.
AIA FILE NO. 31-F-2
MFR: HABITAT, INC.
Circle 239 for further information

RECESSED LOUVER FIXTURE FOR ROUND FLUORESCENTS

MFR'S DESCRIPTION: recessed round fluorescent lighting louvers from ceilings.
USES: indoor illumination.
SPECS/FEATURES: series of 2′, 3′, 4′ diameter fixtures feature new small cell aluminum louver, with vinyl plastice laminated to the top for complete shielding of lamps from all viewing angles. Designed for use in lobbies, reception rooms and executive offices.
AIA FILE NO. 35-F-23
MFR: NEO-RAY PRODUCTS, INC.
Circle 240 for further information

NARROW WALL PLATES FOR LIGHT SWITCHES

MFR'S DESCRIPTION: a line of narrow wall plates added to manufacturer's line of electrical goods.

Circle 119 for further information about YOUNGSTOWN, pp. 32-33→

STOP
water for good
with Karnak®

waterproofing products

KARNAK Membrane Waterproofing

Here is the surest protection possible for foundations where there is hydrostatic head or danger of water seepage.

The KARNAK system bonds onto the foundation surface alternate layers of tough, open-mesh, saturated cotton cloth. The cloth is mopped with a ductile asphalt which penetrates the open mesh and interlocks the layers into a firm mechanical seal against moisture.

This is the only method of foundation waterproofing that insures proper thickness of asphalt and remains in place throughout the life of the structure. It is available with either asphalt or coal tar.

KARNAK 300 (Thiokol) Sealant

An elastic sealant blend of synthetic rubbers that provides a tenacious bond with all types of building materials including those of dissimilar density and texture.

Use KARNAK 300 (Thiokol) for all joints, horizontal or vertical, which are subject to extreme expansion and contraction. This includes those with widely differing coefficients of expansion and contraction, such as wood, aluminum, steel and concrete.

KARNAK 300 (Thiokol) has exceptional elasticity and resilience. Unaffected by extremes of heat or cold, it elongates or compresses with the structure's movements or distortions and without loss of a perfect bond.

Let us give you—or send you—further information on these or other KARNAK products for engineered construction.

Karnak®

ASPHALT KARNAK PRODUCTS

Manufactured by
Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N.Y.

Asphalt Emulsions • Wood Block Mastic • Asphalt Paint • Mastic Flooring • Dampproofing • Roof Coatings and Cements • Plaster Bond Cork Finish • Asphalt Aluminum Coatings • Protective Coatings • Waterproofing Asphalt • Thiokol Sealant • Waterproofing Fabric • Tile Cement

Circle 118 for further information

STEEL

depend on steel conduit from Youngstown—the most complete line in the world

You cut with a steel saw. Bore with a steel drill. Thread with steel. Bend with steel. You use steel so often that you know how good it is. Today, it's better than ever. Steel . . . as strong, familiar, reliable conduit from Youngstown's modern mills.

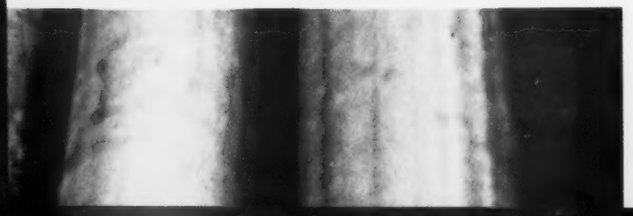
Get Youngstown Buckeye and corrosion resistant Yoloy rigid conduit and EMT. Buckeye for standard installations. Yoloy where corrosion is a problem. Match your needs exactly with the quality Youngstown steel conduit made to meet them.

Choose Buckeye or Yoloy Hot Galvanized conduit. Even the threads are galvanized. Choose Buckeye Electro-Galvanized conduit. Clear enamel interior fishes easier. Choose Buckeye or Yoloy Black Enameled steel conduit. The finish won't wrinkle or crack when bent. Or choose Buckeye or corrosion-resisting Yoloy EMT. Electro-galvanized, coated inside and out with smooth clear enamel.

With any Youngstown quality steel conduit you get easier, kink-free bending. You get smoother threading. Clean, trouble-free handling. Faster fishing. Service masts you don't have to guy. And a modern raceway system that looks as good as it works.

On your next job, specify Youngstown steel conduit. It is readily available in sizes ½" to 6". Get prompt delivery from your electrical distributor.

Youngstown – growing force in steel



For complete information on Youngstown steel conduit, write, Dept. 26-A,
The Youngstown Sheet and Tube Company, Youngstown, Ohio

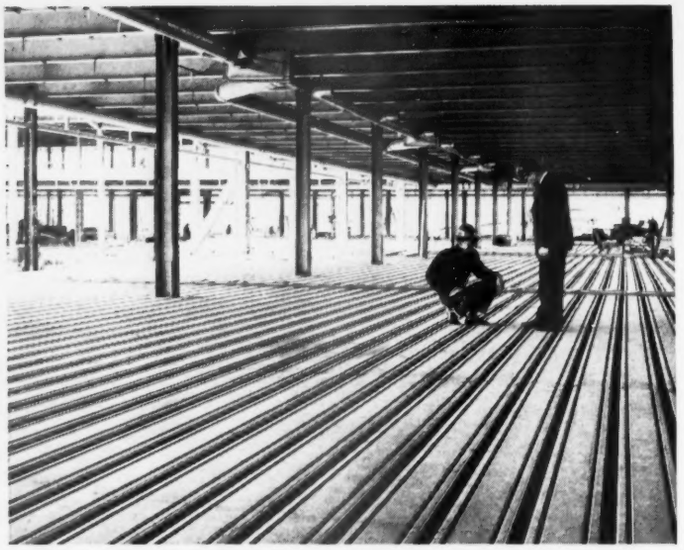
MAHON
M-FLOORS
MEAN

architectural advantages

■ FUNCTIONAL STRENGTH
■ SPEEDY ERECTION
■ EXTRA-CAPACITY CELLS...

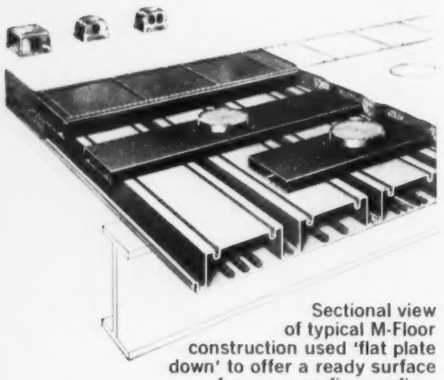
PLUS

EASY LOW-COST FIREPROOFING



Mahon 3-in. beam depth M-Floors, during erection in eastern Pennsylvania project. General Contractor: McCloskey, Inc., Phila.

Artist's rendering of new facility for steel company. M-Floors permit quick . . . and flexible . . . electrical wiring of the facility. Architects: McKim, Mead & White, New York



Sectional view of typical M-Floor construction used 'flat plate down' to offer a ready surface for spray-on fireproofing.

■ Architects and engineers appreciate the proven advantages of Mahon M-Floors—application-designed for today's projects and tomorrow's demands. M-Floors are lightweight, high-strength steel cellular sections, in depths, spans, gages, and types to economically meet most criteria. They provide an ideal steel sub-floor for any kind of floor covering and have a high raceway capacity for the efficient electrical servicing of every square foot of floor space. Used flat-plate down, Mahon M-Floors permit full-depth concrete fill for maximum structural strength at supports, at the same time offer an even surface for easy and effective low-cost spray-on fireproofing. Find out what versatile M-Floors from Mahon can do for you . . . your designs . . . your budgets. Write for technical Catalog M-61 or see Sweet's Files.

other Mahon building products • Aluminum or Steel Curtain Wall • Metalclad Fire Walls • Rolling Steel Doors • Long-Span M-Deck • Steel Roof Deck • Acoustical Metal Walls, Partitions and Roof Deck **Mahon construction services** • Structural Steel—fabrication and erection • Steel Fabrication—Weldments • Geodesic Domes—fabrication and erection.

SPEEDING AMERICAN CONSTRUCTION WITH METAL BUILDING PRODUCTS, FABRICATED EQUIPMENT AND ERECTION SERVICES

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN

Manufacturing Plants—
Detroit, Michigan and Torrance, California
Sales-Engineering Offices in Detroit, New York, Chicago, Torrance and San Francisco
Representatives in all principal cities.

MAHON

Circle 120 for further information

USES: residential and commercial.
SPECS/FEATURES: wall plates available in brass and types 430 and 302 stainless steel. Plates obtainable in most popular device openings and in seven widths ranging from 1⅜" to 2½". All have a standard height of 4½". Design and contour of these narrow plates match manufacturer's line of standard-sized wall plates.
AIA FILE NO. 31-C-71
MFR: SIERRA ELECTRIC CORP.
Circle 241 for further information

OFFICE AIDS

PRESENTATION KIT FOR MASTER-KEY

MFR'S DESCRIPTION: a luxury kit containing master-key for building ceremonies.
USES: luxury item to signify the finishing of a job.
SPECS/FEATURES: kit helps to dress-up the occasion of turning keys over to owners of a new building. Dual-purpose kit consists of a gold-plated master key attached to a velveteen insert in an ebony wood box. After presentation, executive to whom key has been given can use box to hold cigarettes.
AIA FILE NO. 27-B
MFR: SARGENT & CO.
Circle 242 for further information

UTILITY DESK/TABLE LAMP OFFERED IN KIT FORM

MFR'S DESCRIPTION: incandescent-type utility lamp in kit form for do-it-yourself assembly.
USES: office and drafting rooms.
SPECS/FEATURES: company says fixture features strong but lightweight tubular arms which are spring counterbalanced to permit free movement and ability to remain in set position without clamping or locking. Lamp moves up, down, sideways and can swing to illuminate any area on a desk or table top 6' long and 3' wide when secured in a central position. Finished in gray enamel; complete step-by-step assembly instructions are furnished with this kit. Kit price is $9.95.
AIA FILE NO. 31-F-23
MFR: ZACK ELECTRONICS
Circle 243 for further information

TIME-USE AND RECORDS KEPT IN HANDY MEMO

MFR'S DESCRIPTION: planner for work days and memo of time-use and money spent on projects.
USES: field and office records.
SPECS/FEATURES: designed for use away from office with desk unit designed for office use. Entries arranged to provide reminders of upcoming deadlines, provide accurate records of time and expenses for billing expense accounts and tax purposes, reveal time-wastes, establish individual contribution to projects, and compare profits on various undertakings. Pages of wallet unit are composed of gummed sections which can be torn out and attached to permanent unit in office. Complete unit includes pocket reminder, ball point pen, desk top file box with file-ledger folders, a six-year planner, 12 monthly booklets with two pages for each day, and an address and phone card.
AIA FILE NO. 35-H-4
MFR: DAY-TIMERS, INC.
Circle 244 for further information

WALL-HANGING FILE FOR ROLLED MATERIALS

MFR'S DESCRIPTION: facility for convenient and protective filing of rolled materials.
USES: drafting rooms.
SPECS/FEATURES: unit designed to put each roll at eye level and off the floor. One cabinet can hold from 16 to 48 individual roll spaces. Cabinets are designed to hang in a series along the wall or to make a piggyback addition of one or more additional units to the initial fixture. Standard cabinets are 48" wide, 40" high, and 3¼" deep. Finish is standard filing cabinet gray, but other sizes and finishes are available on special order.
AIA FILE NO. 35-H-32
MFR: SAVAGE ENTERPRISES
Circle 245 for further information

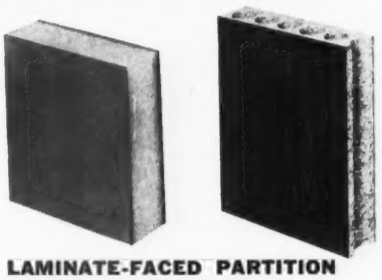
OFFSET DUPLICATING WITH PAPER PLATES

MFR'S DESCRIPTION: a new method of making paper plates for offset duplicating by using a *Thermo-Fax* machine.
USES: duplicating requirements.
SPECS/FEATURES: plates are made by a completely dry process, using same techniques as in copying any document with this machine. Plate is ready in two steps in which image is copied from original document to an intermediate sheet and then to paper plate. Paper plate is not affected by light or sensitive to finger marks when handled.
AIA FILE NO. 35-H-31
MFR: MINNESOTA MINING & MANUFACTURING CO.
Circle 246 for further information

FILE FOR DRAWINGS VERTICAL, MOBILE

MFR'S DESCRIPTION: mobile, vertical file for drawings and prints.
USES: drafting rooms.
SPECS/FEATURES: intended for use with 12 of manufacturer's type *S* binders, it provides for filing up to 1,200 sheets. Occupies only 3 sq. ft. of floor space, can be adjusted to accommodate sheets up to 36"x48", and weighs less than 18 lbs. Constructed of tubular steel frame and equipped with ball bearing casters. Approximate price is $20.00.
AIA FILE NO. 35-H-32
MFR: PLAN HOLD CORP.
Circle 247 for further information

PANELS/SIDING



LAMINATE-FACED PARTITION FOR INTERIOR PANELING

MFR'S DESCRIPTION: paneling with a surface of plastic laminate and a choice of styrofoam or chipboard core.
USES: residential, commercial and industrial.
SPECS/FEATURES: sandwich is made by gluing 1/16" plastic laminate surface to both sides of core. Panel with styrofoam core is recommended especially for any off-the-floor use and panel with chipboard core is recommended for any floor-to-ceiling application. Both panels are in standard sizes 47¾" x 96⅞" or 35¾" x 95⅞". Thicknesses are 1⅛" and 1¾". They are offered in eight wood grains, eight decorator shades and eight patterns. Altogether 64 colors are available.
AIA FILE NO. 23-D
MFR: MICARTA DIV., WESTINGHOUSE ELECTRIC CORP.
Circle 248 for further information

SHEATHING BOARD WITH NEW FIBERS

MFR'S DESCRIPTION: improved characteristics of new sheathing board with use of willow fibers.
USES: residential and light commercial construction.
SPECS/FEATURES: improved sheathing manufacture increases racking load strength to structural frames by 15 per cent. Tensile strength increased 13 per cent. Additional advantages gained include a 10 per cent increase in nail pull strength, reduction in moisture absorption of 38 per cent and an improvement of dimensional stability of 33 per cent. Item made in both ½" and 25/32" thickness.
AIA FILE NO. 19-D-3
MFR: ARMSTRONG CORK CO.
Circle 249 for further information

PRE-FRAMED LOUVER SCREEN BETWEEN PANES OF GLASS

MFR'S DESCRIPTION: pre-framed louver shade screen between two hermetically sealed panes of glass.
USES: window and wall construction.
SPECS/FEATURES: pre-framed screen is located permanently in dead air space of thermal unit to help provide control of solar heat and sky glare. Company says unit has all advantages of a louvered shade screen plus insulating values of a sealed glass unit with no maintenance beyond normal care given to glass windows.
AIA FILE NO. 35-P-5
MFR: ARMOUR GLASS CO.
Circle 250 for further information

MELAMINE-COATED WALL PANELING

MFR'S DESCRIPTION: new melamine-coated wall paneling with random grooving.
USES: residential and commercial.
SPECS/FEATURES: melamine finish is a process during which a plastic coating is baked on hardboard under intense heat. No further finishing required. Paneling comes in thicknesses of ¼" and ⅛", but in a uniform width of only 16" and height of 8'.

←Circle 119 for further information about YOUNGSTOWN, pp. 32-33

PRODUCTS, EQUIPMENT, MATERIALS

Plank can be installed over existing walls, or over furring strips and open studding, without divider moldings or clips. Aluminized backing and a butt edge on the ⅛" variety aids spot cementing to existing walls. Each of two thicknesses available in three cherry woodgrains and ¼" plank in blue, green, yellow and white.

AIA FILE NO. 19-E-6

MFR: BARCLAY MANUFACTURING CO., INC.

Circle 251 for further information

FOLDING CLOSET DOORS IN NON-MODULAR SIZES

MFR'S DESCRIPTION: steel bi-fold closet doors in non-modular sizes.

USES: residential.

SPECS/FEATURES: metal louvered doors can be suited to any closet heights up through 8'-3", and in flexible widths from 1'-6" to any lineal requirement. No skilled labor, special tools or extra trim required in installation. Panels are hinged together and float on pivot pins operating in nylon bushings, and panel rides on nylon guide rollers. Doors are prime painted and shipped as a package with all installation fasteners and trim enclosed.

AIA FILE NO. 35-H-6

MFR: FLOAT-AWAY DOOR CO.

Circle 252 for further information

HARDBOARD PANELS IN RAISED PATTERN

MFR'S DESCRIPTION: addition of new pattern to manufacturer's line of decorative hardboards.

USES: residential and commercial.

SPECS/FEATURES: hardboard, with design of leather appearance in raised pattern. Surface takes lacquer, paint and rag painting. Some of manufacturer's suggested uses are: paneling, room partitions, cabinet doors, sliding doors and displays. Specifications are ⅛" and ¼" thick in 4'X8' panels of tempered, domestic hardboard.

AIA FILE NO. 19-E-6

MFR: HARDBOARD FABRICATORS CORP.

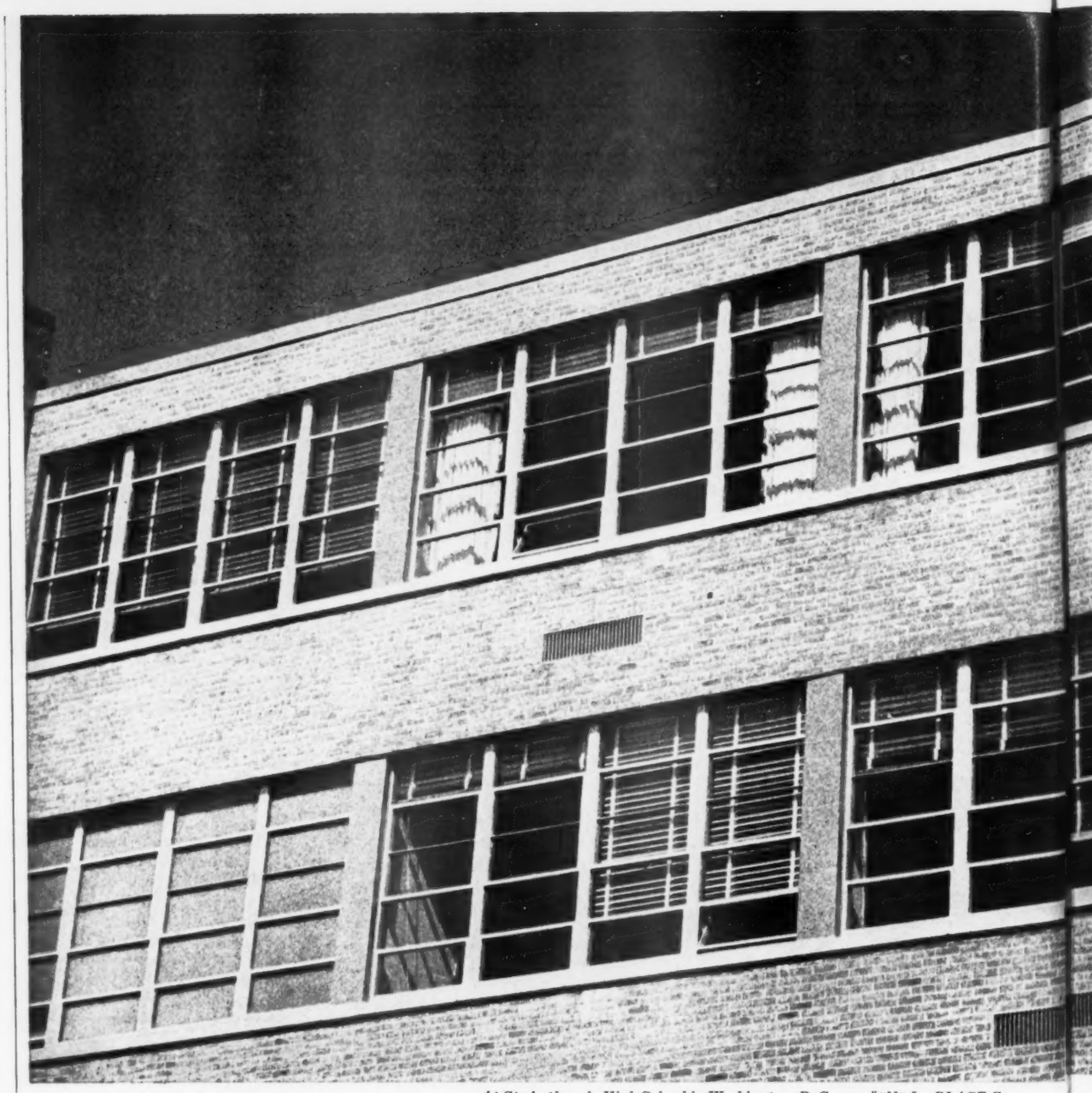
Circle 253 for further information

PORCELAIN ENAMELLED CORRUGATED-STEEL SIDING

MFR'S DESCRIPTION: porcelain enamelled corrugated-steel building material.

USES: siding, roofing and interiors.

SPECS/FEATURES: three types of porcelain enamelled corrugated-steel building material are: corrugated, ribbed or V-beam type. All three



At St. Anthony's High School in Washington, D. C., one #7N5 Lo-BLAST Gas

IN WASHINGTON, D.C....cost-conscious school

Schools, private homes, clubs, government buildings, industrial plants . . . all types and sizes of buildings in Washington . . . use Lo-BLAST Power Gas Burners for top heating efficiency. With the unbeatable fuel economy of *gas*, operating costs average 10% less than with comparable burner units. And the original cost is lower, too. Versatile Lo-BLAST burners adapt easily to any boiler or furnace. With their "inshot" design, all components are outside the firebox for easy access. The *gas*-fired burners operate automatically with forced air injection, independently of vari-

Circle 121 for further information

types are said to be color stable, self-cleaning, easy to erect, acid- and alkali-resistant, and maintenance-free. Items are available in 20 standard colors and designed for single sheet or insulated sandwich construction. Also offered is a line of color-matching ridge caps and flashings as well as fasteners, closures, and weather seals.

AIA FILE NO. 12-C-1

MFR: CALORIC APPLIANCE CORP.

Circle 254 for further information

NEW CURTAINWALL INSTALLATION SYSTEM

MFR'S DESCRIPTION: panel wall installation system based on a new concept in wall engineering.

USES: curtainwall construction.

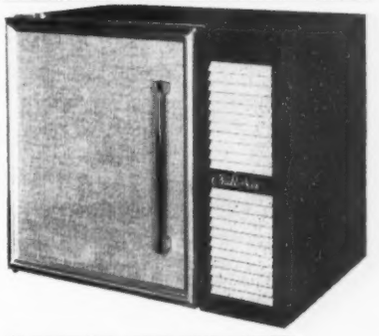
SPECS/FEATURES: wall system requires only perimeter sealing and fastening as opposed to common structural mullion and floating panels. Wall series includes clamp-action head, self-flashing sill, jamb, and panel to panel closures. Manufacturer says system eliminates need for a dual purpose mullion. Sealing is accomplished by permanent clamping in combination with a one part elastic sealing tape. Manufacturer's windows or windows of other makes may be used with this system.

AIA FILE NO. 17-A

MFR: KALWALL CORP.

Circle 255 for further information

MISCELLANY

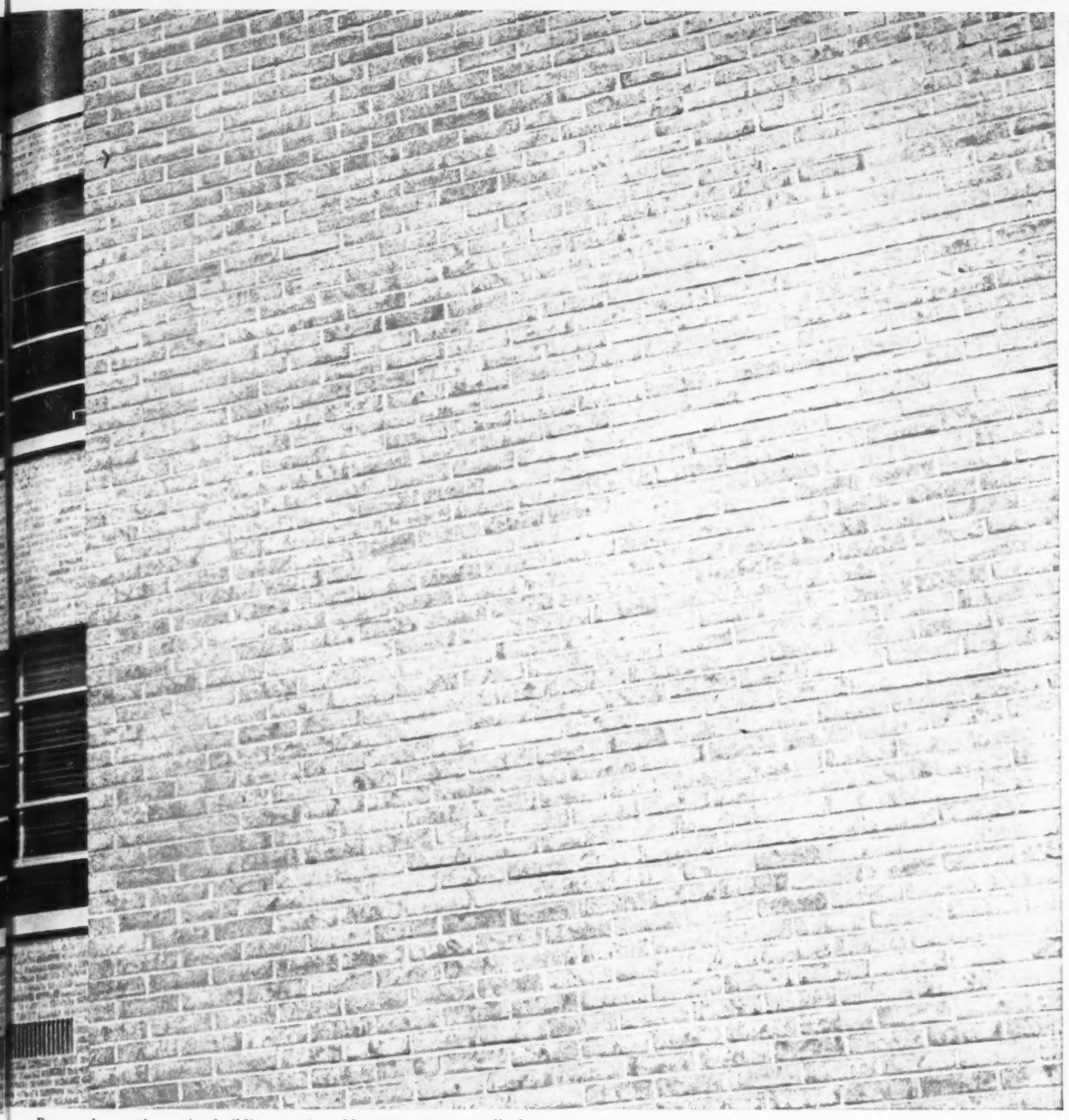


COMPACT REFRIGERATOR WITH DECORATOR PANELS

MFR'S DESCRIPTION: compact refrigerator designed for use as portable, built-in or free-standing unit.

USES: residential and commercial.

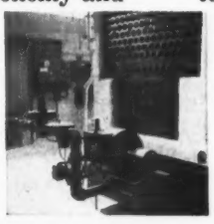
SPECS/FEATURES: refrigerator features custom panels of woods, matched colors, embossed metals, wall papers and fabrics. Stainless steel interior accommodates quart size bottles and six ice trays. Capacity



Burner keeps the entire building comfortably warm, at unusually low cost.

managers heat with LO-BLAST GAS burners

able chimney drafts. You get greater combustion efficiency with all the convenience, economy and safety of modern *gas* heating.
Heat for less with *gas!* For information on Lo-BLAST Gas Burners—and their small counterpart, the Economite—contact your local Gas Company, or write to Mid-Continent Metal Products Company, 1960 North Clybourn Avenue, Chicago 14, Illinois.

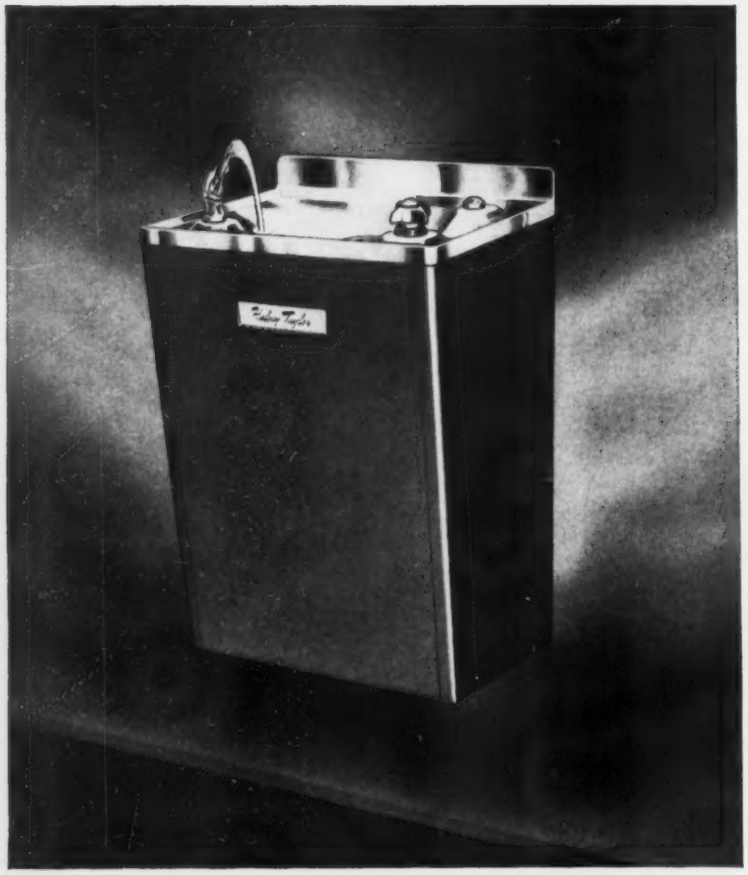


Economite and Lo-BLAST Power Gas Burners operate silently, cost less to install, are well suited for down-draft boilers, and are available in capacities from 70,000 to 20,000,000 BTU.

American Gas Association

FOR HEATING GAS IS GOOD BUSINESS!

Circle 121 for further information



This is the cooler that pioneered a trend

Just a little over a year ago no one ever saw a cooler like this. We call it the Wall-Mount, truly a Halsey Taylor first.

It mounts on the wall . . no exposed fittings, no space behind cabinet to catch dirt or grime! Off the floor . . room underneath for easy cleaning! The answer to maintenance-free installation and, like all Halsey Taylor fixtures, gives years of trouble-proof service.

The Halsey W. Taylor Co., Warren, Ohio

The Wall-Tite, big brother to the Wall-Mount. Fits tight to the wall.

Halsey Taylor®

Write for latest catalog, or see Sweet's or the Yellow Pages

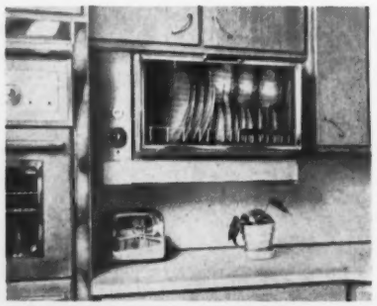
THIS MARK OF LEADERSHIP IDENTIFIES THE MOST COMPLETE LINE OF MODERN DRINKING FIXTURES

261

Circle 122 for further information

PRODUCTS, EQUIPMENT, MATERIALS

is 2.7 cu. ft. Dimensions are 22¾"x 29⅛"x20⅛". A tray cart with casters is optional and can be supplied with tapered brass or black metal legs.
AIA FILE NO. 30-F-6
MFR: ERICKSON INDUSTRIES
Circle 256 for further information



LOW-COST DISHWASHER MOUNTED ON WALL/DIVIDER

MFR'S DESCRIPTION: new dishwasher line, rectangular in form, small in size, that can be mounted on wall or used in a room divider.
USES: residential kitchens.
SPECS/FEATURES: line of dishwashers has three models accommodating service for 6, 10 and 15 persons. Cabinet length of all units is 30", and range from 13" deep x 15" high, 13" x 18" and 23" x 18". Interior capacity has not been sacrificed since manufacturer has placed motor and steam generator in a 4" wide space. Available in brushed stainless steel, woodtone, coppertone and decorator colors. Dishwasher's list retail price for smallest model is $199.95.
AIA FILE NO. 35-C-13
MFR: LING-TEMCO ELECTRONICS, INC.
Circle 257 for further information

INTERCHANGEABLE DUTCH DOOR LINE

MFR'S DESCRIPTION: a line of Dutch doors with interchangeable patterns.
USES: residential entrances.
SPECS/FEATURES: line of Dutch doors offers 16 different doors using a choice of four interchangeable tops and bottoms. All wood parts of doors are treated with toxic and water repellent wood preservative and are guaranteed in accordance with requirement of the National Manufacturers Association warranty.
AIA FILE NO. 16/16-P
MFR: FARLEY & LOETSCHER MANUFACTURING CO.
Circle 258 for further information

CUSTOM HINGES FOR AVERAGE FREQUENCY DOORS

MFR'S DESCRIPTION: a new series of custom hinges for average frequency doors.
USES: residential and commercial.
SPECS/FEATURES: hinge is designed to match, blend or contrast with other modern hardware. Only knuckle is visible when door is closed. All popular plated finishes are stocked as well as all black, all white, black and white or natural wood. Designed especially for use on 1⅜" to 1¾" average frequency doors, it measures 4½" x 3½" and is made of .203 gauge steel.
AIA FILE NO. 27-B
MFR: STANLEY HARDWARE
Circle 259 for further information

LINE CONTROL FOR "WATER HAMMER"

MFR'S DESCRIPTION: controlling system with nesting type bellows to absorb hydrostatic shock pressures ("water hammer") occurring in water lines.
USES: industrial and commercial.
SPECS/FEATURES: internal bellows of system have been tested from compressed position to fully extended length over 2,000,000 times. Item can be installed on any water line without any additional supporting devices in any concealed or exposed location. As shock occurs, bellows expand into pneumatic cushion of compression chamber. Expanding movement of bellows provides displacement required to absorb and control hydrostatic shock.
AIA FILE NO. 29-D-8
MFR: JAY R. SMITH MANUFACTURING CO.
Circle 260 for further information

PREFABRICATED SHOWER PANS

MFR'S DESCRIPTION: shower pans prefabricated of new membrane.
USES: residential and commercial.
SPECS/FEATURES: prefabricated shower pan of waterproof and damp-proof membrane is corrosion proof, acid-resistant, and not subject to electrolytic action. Membrane is soft and pliable, conforming readily to irregularities of usual shower installations.
AIA FILE NO. 29-C-3
MFR: COMPOTITE SHOWER PAN
Circle 261 for further information

LIQUID SOAP VALVE IS VANDAL-PROOF

MFR'S DESCRIPTION: a liquid soap shower valve of vandal-proof design.
USES: educational and institutional.
SPECS/FEATURES: valve not only guards against vandals, but against draining of entire soap supply. Soap dispenser designed to reduce to a minimum projections which might injure user in event of falls. Over-all projection of valve from wall is 2½".
AIA FILE NO. 29-J
MFR: BOBRICK DISPENSERS, INC.
Circle 262 for further information

THE ANATOMY OF A NEW PROJECT **PREVIEW:32**

MICHIGAN CONSOLIDATED GAS COMPANY'S OFFICE BUILDING, DETROIT — PROJECT
MICHIGAN CONSOLIDATED GAS COMPANY — CLIENT
MINORU YAMASAKI—SMITH, HINCHMAN & GRYLLS — ASSOCIATED ARCHITECTS AND ENGINEERS
BOLT, BERANEK & NEWMAN, INC. — ACOUSTICAL CONSULTANTS
PROFESSOR HOUSEL OF THE UNIVERSITY OF MICHIGAN — SOIL CONSULTANT

General program

The Michigan Consolidated Gas Company's new office building, scheduled for completion in late 1962, will be the first major addition to Detroit's downtown skyline in over 30 years.

Its site, facing south toward the Detroit River, is the focal point of the Civic Center at the juncture of Woodward and Jefferson Avenues. Due to street widenings and building set backs, above grade the building occupies only 124′ square of the original 200′ square block. Consideration by the architects of this area and of the company's present and future requirements for office space, determined a tower structure 28 stories high with a 60′ high penthouse. A ramp on the north side will lead to receiving facilities and to a 40-car garage under the sidewalk and street pavements of Woodward Avenue.

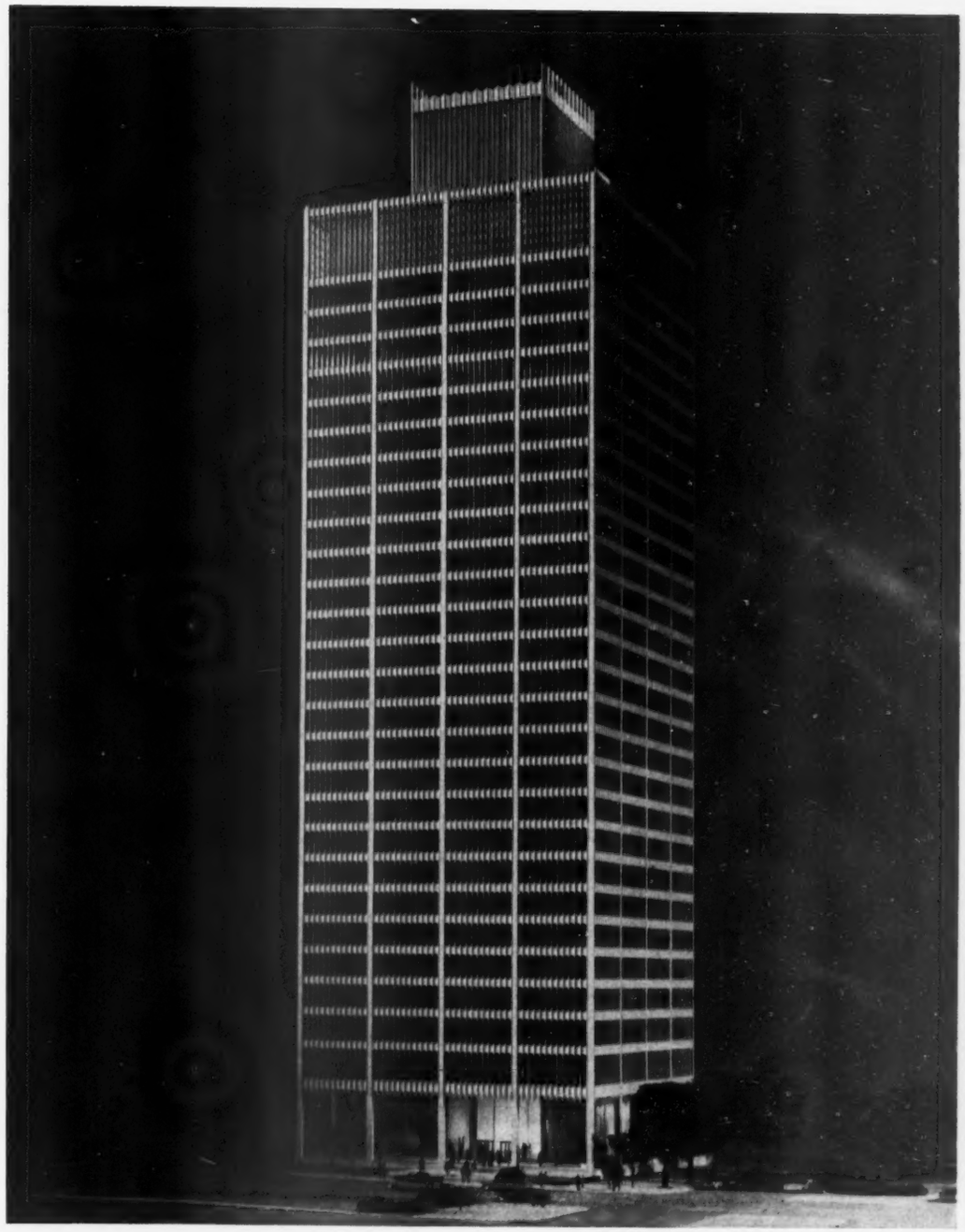
General design features

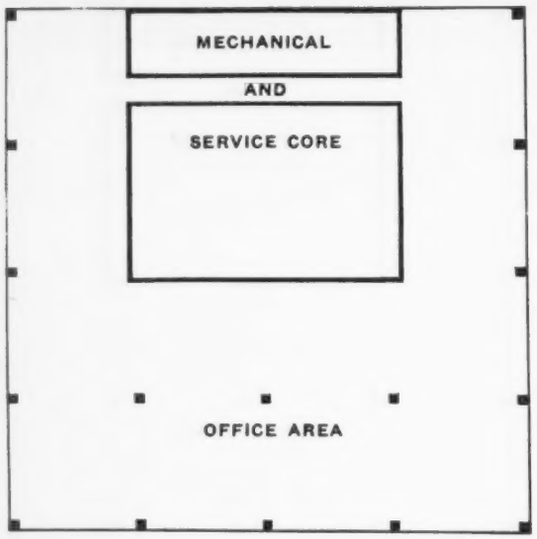
Because of its dominant location in the Civic Center, the 28′ high first story was placed on a platform and purposely left devoid of solid walls, with the exception of elevator and stair areas, to provide a through view from the streets to the river front park. The 25′ high plate glass and polished stainless steel curtain walls are set back from the building perimeter, to form an open gallery slightly above street level. This lobby will be used for exhibits of civic interest. A 35′ by 130′ reflecting pool with fountain sculptures is placed along the south or river side and is crossed by a marble bridge to reach the main entrance. Other entrances are located at the northeast and northwest corners.

The entire second floor is devoted to customer service, home economic and display functions including a meeting room, and a demonstration stage kitchen. Above this rise 23 stories of offices with an employees' cafeteria on the 14th floor. The 26th floor will house a public restaurant. All floors command views of the river and of the city's two principal streets which, in the area, are being developed to mall-like proportions. The windowless walls of the 27th and 28th floors, which house mechanical rooms and building services, are set back behind grille work and along with the penthouse will be illuminated with mixed primary colored lights which will afford a variety of effects for weather indication, holidays, etc.

The exterior is of shiny white precast concrete with exposed quartz aggregate, with the exception of the white marble star-patterned platform, the lobby walls and the building column facings. The elongated hexagonal windows, which are stainless steel framed, are set in openings formed by adjacent precast units consisting of two-story high mullions with finlike half-spandrels jointed above and below the apexes of the frames. The tracery of the lighting gallery and the free standing ribs of the penthouse outer wall are of the same material.

(*Continued on page 40*)





TYPICAL FLOOR PLAN

Engineering and construction notes

The building foundations consist of 30 belled caissons extending down 120′ to hard pan above bedrock and varying from 4′ to 8′ in diameter. Resting on these is the structural steel frame, the tallest all welded construction in the country. The 30′ typical column spacing was developed from a 4′-8″ module which in turn was determined by a 4′ long fluorescent tube. Architectural design considerations dictated lower floor finished column dimensions no greater than ½ module or 2′-4″ square and a minimum spandrel depth. Welding permitted the fabrication of almost solid steel columns in the lower stories and wind connections without projecting bracing.

Each typical structural floor consists of coffered reinforced concrete two-way slab construction, continuous between the main structural members and acting as a stiffening diaphragm to reduce the amount of wind bracing required in the steel frame.

Each 4′-8″ module contains one coffer, in which a three or four tube fluorescent fixture is hung. The coffer legs support continuous extruded aluminum members which act as partition receivers, incorporate a wiring raceway and carry the 4′-5″ square ½″ cellular metal panels forming the luminous ceiling. Solid plaster partitions will be used and can be placed on any module line. The concrete coffer legs act effectively to prevent sound transmission between partitioned areas.

Over the ribs of the coffers, 2-¾″ adjustable posts carry flanged underfloor electric and telephone ducts 2′-4″ on center which in turn carry corrugated metal deck, insulation and the finished floor slab, within an over-all depth of 6″. The space between the top of the coffered slab and the bottom of the insulated finish floor slab, forms a plenum for air distribution to the perimeter air units of the exterior zone, and to the air outlets in the coffers of the interior zones.

This condensation and integration of structural, architectural, mechanical and electrical elements results in a ceiling-to-floor construction depth of only 3′-1″, providing luminous ceilings and air distribution normally requiring upwards of 4′-10″. A saving of two stories or 24′ of building height was thus effected.

The underground garage structure, independent of the building structure, is of reinforced concrete and is supported on a 3′ thick concrete mat designed along with the roof slab and over burden of pavements to remain in static balance with the soil and hydrostatic pressures.

Vertical transportation

Six low rise passenger elevators handle the traffic from the first to the 14th or cafeteria floor at a speed of 600′ per minute. Six high rise elevators travel from the first to the 14th floor and then locally to the 20th or restaurant floor at 1,000′ per minute. Electronic control and programming systems analyze the up and down and emergency peak loads, number, location and duration of floor calls, and automatically provide the optimum service for any usual or unusual conditions.

An hydraulic passenger elevator travels from the first floor to the basement for the use of the limited number of employees using the mail room, receiving dock area and the underground parking garage. The 6,000 lb., 600′ per minute freight elevator serves all floors from the basement to the lower level of the penthouse.

Small packages and mail will be distributed between all floors by a continuous, automatic loading and unloading vertical conveyor. Each 16″ x 12″ conveyor tray has a capacity of 30 lbs. An automatic unloading 500′ per minute electric service lift is provided for larger packages and weights up to 500 lbs.

A 30′ long electrically operated gondola, guided by stainless steel channels set in the marble column facings, will be used to clean and maintain the exterior walls and windows.

Electrical features

Dual primary service from separate utility company substations will insure continuity of power and light in the event of failure of either service. The 2,000 KVA, 4,800/480/277 volt double ended unit substations are located in the basement, 18th and 28th floors.

The 500 KVA, 480-120/208 secondary substations are located in the basement and 28th floor. Secondary distribution from the above substations is by aluminum bus duct rising through the electrical rooms, centrally located on each floor.

Building power service is 480 volts, three-phase, 60 cycle. Lighting service is 480/227 volts, three-phase, 60 cycle, four-wire solid neutral. Miscellaneous office equipment service is 120/208 volts, three-phase, 60 cycle, four-wire, solid neutral.

The substation locations and sizes were determined to: *1* Provide minimum short circuit current at the distribution bus and distribution panels by the selection of the transformer sizes. This allows the use of less costly distribution equipment and minimizes outage possibilities; and *2* to centralize substation load centers, thus minimizing the voltage drop and the distribution feeder sizes—for minimum distribution costs.

The specially design fluorescent light fixtures in the typical floor luminous ceiling coffers consist of a square perforated metal pan slightly smaller than the coffer dimension. These fixtures are easily altered from three to four tubes where higher than normal illumination is required. Thermal and acoustical insulation is factory applied to the top surface to minimize heat gain in the structural floor slab under the air plenum and to act as an acoustical ceiling and to reduce possible sound conductance, where air is supplied in interior zones from the plenum above and around the fixture edges. The fixture, installed by a single trade, serves the three above purposes as well as illumination.

The first floor lobby, both inside and outside the glass curtain walls will be illuminated by another fixture of special design. Each 4′-8″ module will contain a shallow fiberglass dome with a 4″ aperture at its top. Through this hole, light is focused on a gas blue plastic "jewel" supported by diagonal sculptured arms of polished chromium finish. The greater part of the light is reflected back to the dome, giving a pleasant indirect diffused light, but enough light penetrates the jewel to give the effect of hundreds of blue gas flames suspended below the coffers, without noticeably affecting the color of the over-all illumination.

Mechanical notes

Two gas fired low pressure boilers are installed in the lower penthouse (29th floor) level. This location was chosen as a less costly alternate to providing a second basement. These boilers will supply steam required for winter heating and summer refrigeration and domestic hot water.

Each floor has its individual mechanical room, containing fans, steam for hot water converters, etc., and may be operated independently of any other floor.

A special system of heating and air conditioning all floors from the second to the 25th has been designed for this project. Air, cooled to 50° F is introduced to the floor plenum at controlled volume and pressure and is delivered to terminal units, one for each 4′-8″ module at the exterior walls. The units, housed under 3″ high, 12½″ wide precast terrazzo window stools, are of variable volume reheat type and were developed by Smith, Hinchman & Grylls and the Titus Manufacturing Corporation.

During periods of heat demand the air passes through a fintube coil and is reheated to a maximum of 130° F and delivered to the area at a minimum of 65 cfm. As heating changes to cooling demand in any location, thermostatically operated controls automatically throttle down the hot water volume and in sequence open a damper which allows delivery of an additional 185 cfm of cooled air. At peak load 250 cfm of cooled air can be delivered where required. The terminal units can be so linked that offices of any size can have individual control.

Interior zones, where a cooling demand is anticipated throughout most of the year, are supplied through finger ducts laid in the floor plenum to outlets in the top of the coffered structural slab. Manually controlled dampers regulate the volume of the cooled air which passes around the light fixtures described above and is diffused through the cellular luminous ceiling.

Chilled water for the cooling systems is provided by two 718 ton and one 124 ton steam absorption machines, in conjunction with two 17½′ diameter fan cooling towers which are located in the upper level of the penthouse. All machines are connected in parallel, but may be operated independently during periods of reduced demand or other normal working hours.

All sidewalks and the garage ramp have conventional liquid snow melting systems. However, the first floor platform outside the curtain walls will be heated by air circulated in a plenum constructed of precast concrete duct units under the marble surface.

LITERATURE

Literature cited in this department is available from various manufacturers and associations free of charge, except where indicated. To obtain copies, circle the keyed numbers on the reader service cards facing pages 1 and 60.

TRANSLUCENT ACRYLIC PANELS
Full color brochure displays a line of structural and decorative translucent acrylic panels. Eight different patterns are shown in close-ups and application photos. Interior and exterior panels are shown as well as use of these panels in working with light and decoration. Selection of colors and shades are displayed with all color tones carried over to the booklet in original condition.
AIA FILE NO. 26-A-5/9
MFR: UNITED STATES RUBBER CO.
Circle 300

SCHOOL LAB FURNITURE
Wood educational laboratory furniture for secondary schools and junior colleges is featured in a new booklet. Illustrated and described in detail are instructor's desks, perimeter tables, combination science tables, cabinets and casework, laboratory sinks, fume hoods, special purpose units, service fixtures and accessories. Featuring many typical illustrations, new brochure is a helpful planning aid. Dimension drawings and specifications are included. (92 pp.)
AIA FILE NO. 35-E
MFR: KEWAUNEE TECHNICAL FURNITURE CO.
Circle 301

CLOTH TAPE BROCHURE
A manufacturer of pressure-sensitive tapes, adhesives, sealants and coatings has prepared a brochure on his complete line of pressure-sensitive and heat sealing cloth tapes. Brochure describes specific properties, features and uses for each of the tapes and illustrates applications with on-the-job photos.
AIA FILE NO. 24-A/31-C-681
MFR: PERMACEL
Circle 302

BEFORE YOU BUY OFFICE PARTITIONS, SEND FOR YOUR "CHECK THE FACTS" BROCHURE

Learn the 20 tests for determining the ideal movable office partitioning system

Selecting office partitions isn't easy . . . it's an investment you have to "live with" daily. Haskelite's "Check the Facts" brochure has a check list of 20 requirements that an ideal partitioning system must meet. This check list will enable you to "test" any of the various partitioning systems now available. That way, you can judge for yourself the merits of different partitions—and make the *right* choice when *beautifying* your office space in a *practical* way.

HASKELITE EXEC-UNITS®
. . . ideal movable office partitions

HASKELITE MANUFACTURING
DIVISION OF EVANS PRODUCTS COMPANY
GRAND RAPIDS, MICHIGAN

Please send "*Check the Facts*" brochure
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A.E.

Circle 123 for further information

Why take less . . . when CORDLEY offers *more:*

More Cooler Experience. Water Coolers are Cordley's *only* business, not a side line.

More Assurance of Satisfaction. Cordley's full 5-year guaranty is by far the strongest in the industry.

More Help in choosing the right coolers for your use...from Cordley's line of 28 job-rated models. 4195

The New CORDWALL LINE

No plumbing shows. Flush to the wall. No dirt can get behind. 3 wall models for installation at any height. 5 floor models. See Yellow Pages for nearest Cordley Distributor. Ask for Catalog 61.

CORDLEY & HAYES
Specialists in water cooling since 1889
443 Park Avenue South, New York 16, N.Y.

Circle 124 for further information

LITERATURE

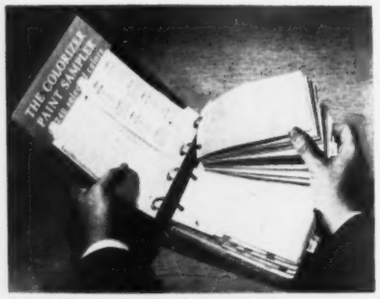
PLASTICS PRODUCTION

A major manufacturer and supplier of raw materials and resins to plastic molding companies has made available to architects and engineers a new brochure on their production, technical service, advanced research and development and customer oriented service. A color-coded table displays the mechanical, thermal and physical properties of company's custom formulations in three basic thermoplastics. (14 pp.)

AIA FILE NO. 24

MFR: FOSTER GRANT CO., INC.

Circle 303



PAINT COLOR SAMPLER

A new paint color pack especially designed for architects has been developed. It comprises 240 colors selected by noted color authority Faber Birren to reflect current taste in interior and exterior architectural color design. Colors are grouped in families —off white, warm pastels, warm muted, cool pastels, etc.—and each color sheet is perforated so a part of the sheet may be removed and attached to specifications. Formulas for making each color are printed on the back of each perforated section of each sheet.

AIA FILE NO. 25-A

MFR: COLORIZER ASSOCIATES

Circle 304

CEMENT ADMIXTURE

Technical bulletin discusses a product which is a polyvinyl acetate emulsion for use as a bonding agent and fortifying admixture for cements. Purpose of bulletin is to cover application of product both as a concrete adhesive and as an admixture which, manufacturer says, imparts greater impact strength particularly to concrete floor toppings. Physical properties of product, history, handling and availability of product are also covered. (4 pp.)

AIA FILE NO. 3-B-1/2

MFR: COLTON POLYMERS DEPT., AIR REDUCTION CHEMICAL & CARBIDE CO.

Circle 305

REPORT ON WALL COATINGS

A new report on wall coatings has been prepared for architects. Report is intended to clarify the various properties of wall surfacing materials for purpose of comparison between different classes of products available. Information in this report was prepared as a result of laboratory tests and experience in the field, and includes Inorganic Finishes, Thermo-Setting Resin Based Materials and Thermo-Plastic Resin Based Materials.

AIA FILE NO. 24/25-A

ASSN: DESCO INTERNATIONAL ASSN.

Circle 306

URETHANE APPLICATIONS

Insulation and structural applications of manufacturer's pour-in-place urethane plastic foam are among subjects covered in a new brochure. Other applications outside of the architectural and engineering field are also discussed. An easy-to-read table outlines the typical physical properties of the foam. (12 pp.)

AIA FILE NO. 24

MFR: NOPCO CHEMICAL CO.

Circle 307

URETHANE INSULATION

Urethane insulation for foundation perimeters, walls, ducts, pipes, equipment, cold storage and pre-fabricated panels is covered in a new brochure. Advantages of product, specifications and availability, suggested applications and properties are discussed. (4 pp.)

AIA FILE NO. 37-A

MFR: BARRETT DIV., ALLIED CHEMICAL CORP.

Circle 308

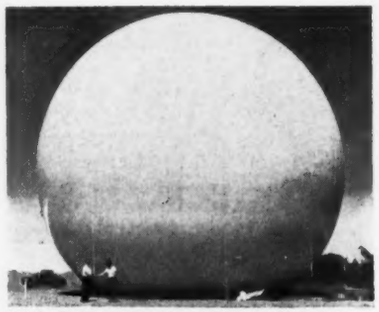
STYRENE-BASED PLASTICS

New literature discusses a family of molding and extrusion styrene-based plastics. Possible applications, design and cost requirements, typical performance data with illustrating tables and graphs are included. Product is produced by a technique which gives a high degree of molecular control. According to manufacturer, this control permits product structuring to meet almost any desired specification, as discussed in booklet. (10 pp.)

AIA FILE NO. 24

MFR: MONSANTO CHEMICAL CO.

Circle 309



AIR-SUPPORTED STRUCTURES

Designers and manufacturers of space satellites ECHO I and ECHO II have made a copy of their report to the House Committee on Science and Astronautics, entitled *Erectable and Inflatable Structures in Space,* available to architects and engineers. Report contains numerous photographs of various balloon satellites in present use and includes samples of the various "skins" fabricated for space vehicles. Company's experiments with air supported structures using similar "skins" is also shown. (23 pp.)

AIA FILE NO. 13-A

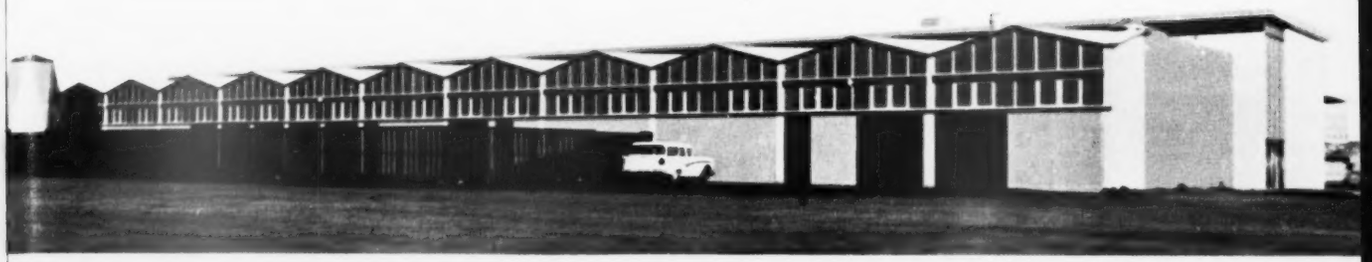
MFR: G. T. SCHJELDAHL CO.

Circle 310

INTERIOR PANELING

Manual features large, full color photographs and art illustrating installations, and color swatches of all available varieties of a line of interior panels. Listings and descriptions of all products offered by company are

Circle 125 for further information about MISSISSIPPI GLASS→



Hammered Coolite, Glare Reduced, installed in Pacific High School, San Leandro, California. Architect: Schmidts, Hardman & Wong, Berkeley, Calif. Glazing by: W. P. Fuller & Company.

SCORES HIGH in TODAY'S SCHOOLS

Whether it be in a western elevation where Coolite Heat Absorbing glass is installed to harness "raw" sunlight and control temperatures . . . a skylight to provide a large area of shadowless illumination . . . classroom fenestration that directs light deep into interiors . . . polished or obscure wire glass that provides fire retardance plus security . . . there is a Mississippi product that will handle your assignment capably and at reasonable cost.

Glare Reduction, Heat Absorption, Light Direction, Diffusion, Controlled Daylight, Protection—you can obtain them all in glass by MISSISSIPPI. There is a school-tested pattern for every requirement in line with your school building budgets. See your nearby distributor of quality glass.

Undistorted, softened natural light by Pentecor provides the maximum in light distribution in Clopton High School gymnasium, Clarksville, Missouri. Architect: Kenneth E. Wischmeyer. Contractor: Brockmeyer Construction Co.

Hammered Coolite Wire Glass spans western elevation in new gymnasium of Belleville Township High School, Belleville, Illinois. Associated Architects: Charles E. King & Wesley W. Chorlton.

Glass goes to Class at Mississippi

Take advantage of Mississippi's school daylighting knowledge which is supplemented by continuing research in a specially designed schoolroom erected on company grounds. All this information and experience is available to you when planning new structures or in remodeling work.

MISSISSIPPI GLASS COMPANY

88 Angelica Street, St. Louis 7, Missouri

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KEEP AMERICAN WORKERS BUSY BUY UNITED STATES GOODS

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

MISSISSIPPI GLASS...

Translucent, light diffusing glass not only serves as a background for beauty . . . *it is beauty.* Add the proven utility that only glass offers and you have the reasons why glass is preferred for these and other characteristics that help to achieve clean, functional modern design.

In the hands of skilled artisans at Mississippi, today's glazing requirements are interpreted in patterns and textures that challenge the imagination and give dramatic impact to structures large and small—whether industrial, commercial, institutional or residential. For glass that is truly the finest achievement of the glass manufacturers' art . . . specify MISSISSIPPI.

NEW CATALOG—

Contains pattern descriptions, light distribution charts, and transmission data. Send for your free copy today.

Represented in SWEET'S Files (Industrial Construction, Plant Engineering, Architectural, Light Construction.)

MISSISSIPPI GLASS COMPANY

88 Angelica Street, St. Louis 7, Missouri

NEW YORK • CHICAGO • FULLERTON, CALIFORNIA

LITERATURE

included, such as melamine-coated panels, random-grooved and reinforced glass fiber panels. Exterior use panels are also shown.
AIA FILE NO. 31-D
MFR: BARCLAY MANUFACTURING CO., INC.
Circle 311

EPOXY WALL COATING

Literature on functions and specifications to sanitize and help beautify concrete block, haydite block, and other porous wall surfaces is now available. Brochure covers properties, sanitation characteristics and low maintenance costs of product and gives suggested applications.
AIA FILE NO. 4-P
MFR: STEELCOTE MANUFACTURING CO.
Circle 312

MACHINING THERMOPLASTICS

Booklet outlines recommended procedures for machining and finishing of thermoplastic sheets, rods and tubes. Originally booklet appeared as an article in *Modern Plastics Encyclopedia*, and has just been released for architects and engineers. Procedures discussed include sawing, routing, drilling, turning, shearing, punching, grinding and finishing. General recommendations for tool design, feed and speed, and use of coolants are presented. Special machining characteristics of acrylics, nylon, fluoro-carbons and polyethylene are also covered.
AIA FILE NO. 24
MFR: CADILLAC PLASTIC & CHEMICAL CO.
Circle 313

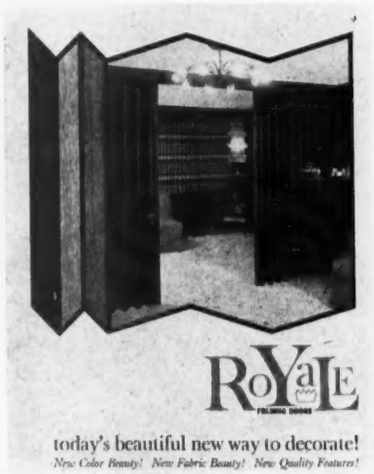
MISCELLANY

MASONRY-ANCHORING BOOKLET

A guide to masonry anchors and anchoring methods explains technical factors in selecting anchors for each job. Two tables summarize pertinent information on principal kinds of masonry and anchors, to simplify determining sizes as well as types of anchors. Booklet also analyses total cost of masonry anchoring according to anchors, drills, and labor. User is shown how to compare anchors and methods for lowest installed cost.
AIA FILE NO. 27-A
MFR: THE RAWLPLUG CO., INC.
Circle 314

TOOL BUYING GUIDE

A new buying guide describing 72 portable electric tools for architects and engineers is offered. More than 400 accessories are included. Complete information is given including specifications, application of products, and numerous photographs of each tool in use. Kits and accessories are described in detail and listed by part number. Guide includes illustrated charts showing possible combination uses of tools.
AIA FILE NO. 35-i-25
MFR: THE PORTER-CABLE MACHINE CO.
Circle 315



FOLDING DOORS

New line of interior doors, room dividers and closet closures is shown in a recently published brochure. Folding doors are explained in terms of color and fabric qualities, use as a space-saver and space-creator, and resemblance to a panel wall. Facts are given on installation and maintenance. Sizes and shipping weights are listed and construction and specifications are given. Cross-section drawings, installation photographs and pertinent descriptive data call attention to stock, standard and custom versions of the product.
AIA FILE NO. 16-M, 35-H-6
MFR: ROYALE FOLDING DOORS
Circle 316

PORTABLE TABLE SEATING

An increased efficiency gained with portable, fixed-dimension tables and ways in which they save space, labor and money are explored in a new booklet. Purposes of each of seven tables in company's line, as well as portable staging, are explained along with dimensional drawings. Pictures of typical installations and complete specifications are included. (20 pp.)
AIA FILE NO. 28-A-7
MFR: SICO MANUFACTURING CO., INC.
Circle 317

BUILDING DIRECTORIES

Line of directories for commercial building lobbies and halls is illustrated in a new booklet. Illuminated and non-illuminated models with various color combinations are discussed along with other types, sizes and name capacities. Also mentioned are standard frames or custom made frames that match moldings and trim.
AIA FILE NO. 35-N-3
MFR: THE TABLET & TICKET CO.
Circle 318

WOOD GARAGE DOORS

Folder presents facts about a line of garage doors. Full-color designs are illustrated, followed by facts about wood, mechanisms and hardware. Latter part of folder describes how doors can be opened and closed automatically. A feature of the folder is a door with plastic-impregnated fiber honeycomb core.
AIA FILE NO. 16-D
MFR: CRAWFORD DOOR CO.
Circle 319

VINYLS IN CONSTRUCTION

Reprints on use of vinyls in construction as published recently by *Modern Plastics Magazine* is offered to architects and engineers by a major producer of this material. Articles explain the numerous applications of vinyl in residential, commercial and industrial building as well as a look into the future of vinyls. (16 pp.)
AIA FILE NO. 24
MFR: B. F. GOODRICH CHEMICAL CO.
Circle 320

BRICK SAMPLE KIT

New three-page, permanently bound architect design and application manual contains miniature samples of manufacturer's complete line of brick. Permanently attached three-ring binder contains specification data describing the complete line of glazed and face brick including shapes. Additional color pages provide visual wall paneling effects.
AIA FILE NO. 3-F
MFR: DARLINGTON BRICK DIV., CENTRAL COMMERCIAL CO.
Circle 321

CONSTRUCTION FILLER/SEALER

Filling, sealing and waterproofing of construction joints with a system based on a concept of sealing all types of expansion, contraction and struc-

"PREFAB GLASS FIBER AIR DUCT CUT OUR INSTALLATION TIME 50% IN NEW BLUE CROSS-BLUE SHIELD BUILDING"

"Right from the start we saved money with G-B Duct," reports Mr. Kenneth L. Lilly, of Dolby and Lilly, air conditioning contractors. "We would have had to fabricate conventional ducts and then insulate them for air conditioning—but using prefab, lightweight G-B Duct saved us almost 50% in time. And Blue Shield got a noiseless duct system at no extra cost!"

Manufactured in ready-to-use 6′ sections, G-B Duct is quickly and easily installed with only a knife, standard sheet metal fittings and vapor barrier tape. There's no pre-assembly work. The result is a completely noise-proof, insulated duct system and usually at less cost than insulated metal duct systems. For complete information, write GUSTIN-BACON MFG. CO., 250 W. 10th St., Kansas City, Mo.

Circle 126 for further information

←Circle 125 for further information about MISSISSIPPI GLASS

LITERATURE

tural joints is covered in a recent publication. Types of sealants and fillers for different jobs are discussed and 24 photos illustrate application and typical construction.
AIA FILE NO. 7-D
MFR: SONNEBORN CHEMICAL & REFINING CORP.
Circle 322

LIGHTING

LIGHTING CALCULATOR

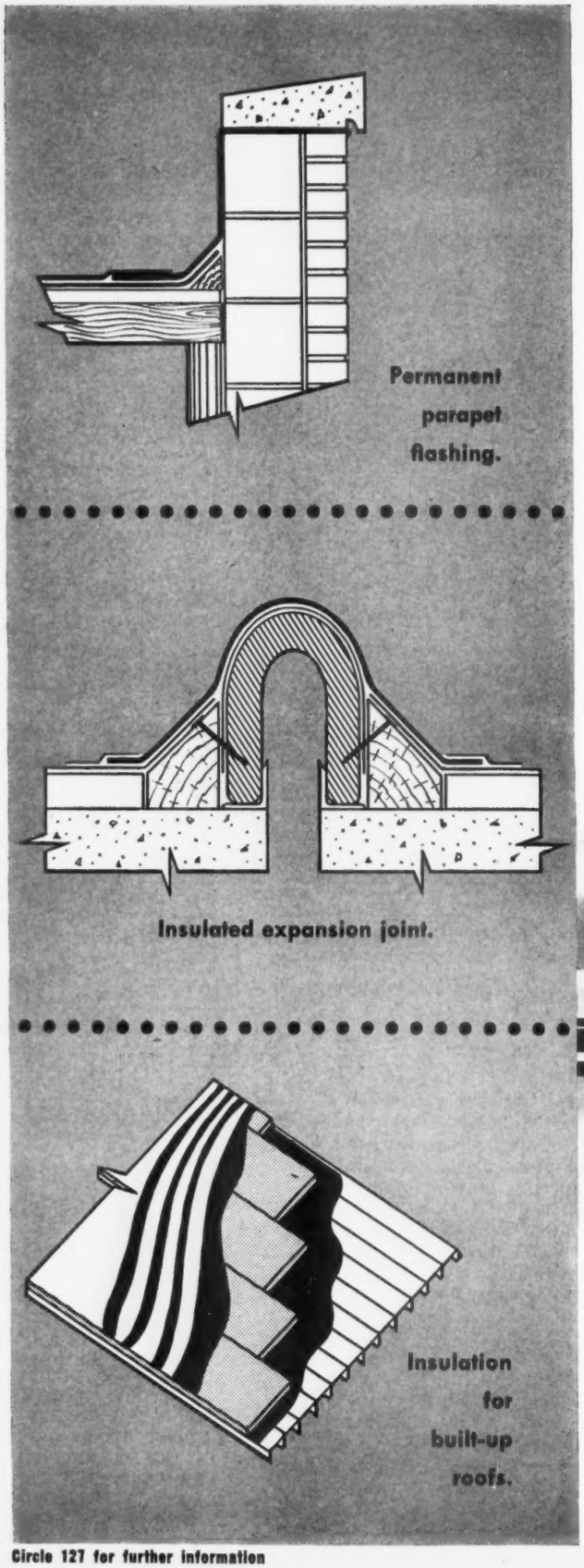
Graphic calculator gives information on selection and spacing of company's lighting fixtures. The wheel-shaped calculator was designed to simplify installation planning, while allowing architects and engineers to take full advantage of a variety of lighting fixtures.
AIA FILE NO. 31-F-1
MFR: LIGHTOLIER
Circle 323

DIMMER MANUAL

New manual covering a line of control systems for theatres, TV studios, school and college auditoriums, restaurants and clubs has just been published. Manual also discusses in detail autotransformer dimmers, cold patching systems, consoles and programmers together with complete product and system specifications.
AIA FILE NO. 31-D-22
MFR: KLIEGL BROTHERS
Circle 324

COLORFUL LIGHTING MANUAL

Lighting fixture manual uses multiple flaps to overlap the bases of manufacturer's standard spreaders, and displays a total of ten pendants as they would appear in large or small groups. Offerings in pendants range from severe metal cones, to opal glass tear drops, to textured wicker shapes. Ceiling mounts shown range from simple three-light arrangements to elaborate 12-light construction. Manual also has a special visualizer for a chandelier with different types of shades. Manual

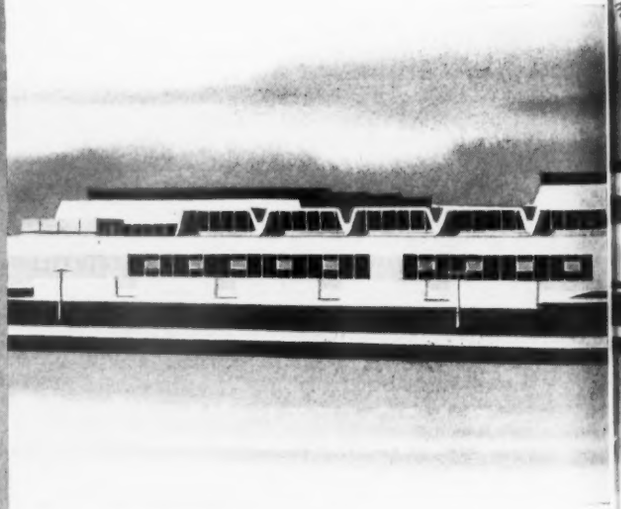


Circle 127 for further information

DOW

Dow roofing materials provide permanent water- and moisture-tight seals for . . .

- **PARAPETS AND ROOF STRUCTURES**
- **EXPANSION JOINTS**
- **INSULATING BUILT-UP ROOFS**
- **METAL-TO-METAL JOINTS**



SOUTHWESTERN COMMUNITY HIGH SCHOOL, FLINT, MICHIGAN

Architect: Eberle M. Smith Associates, Inc.

Roofing Contractor: Sterner Sheet Metal and Roofing Co.

All through-steel joints, parapets and valleys are flashed with Saraloy 400.

ROOFING MATERIALS

solve design problems, reduce installation time and costs!

Problems with roofing and flashing design? Dow roofing materials can help make designing of both conventional and non-conventional buildings easier... sometimes even permit unusual designs not possible with ordinary materials.

Take Saraloy® 400 flexible sheet flashing, one of the most durable, easiest-to-use flashing materials available. It can be conformed to almost any shape without prefabrication . . . can be adhered to all common building materials. Saraloy 400 is ideal for flashing parapets, metal-to-roof joints, "through-steel" sections. For roof expansion joints, its flexibility accommodates even extreme relative movement between building sections.

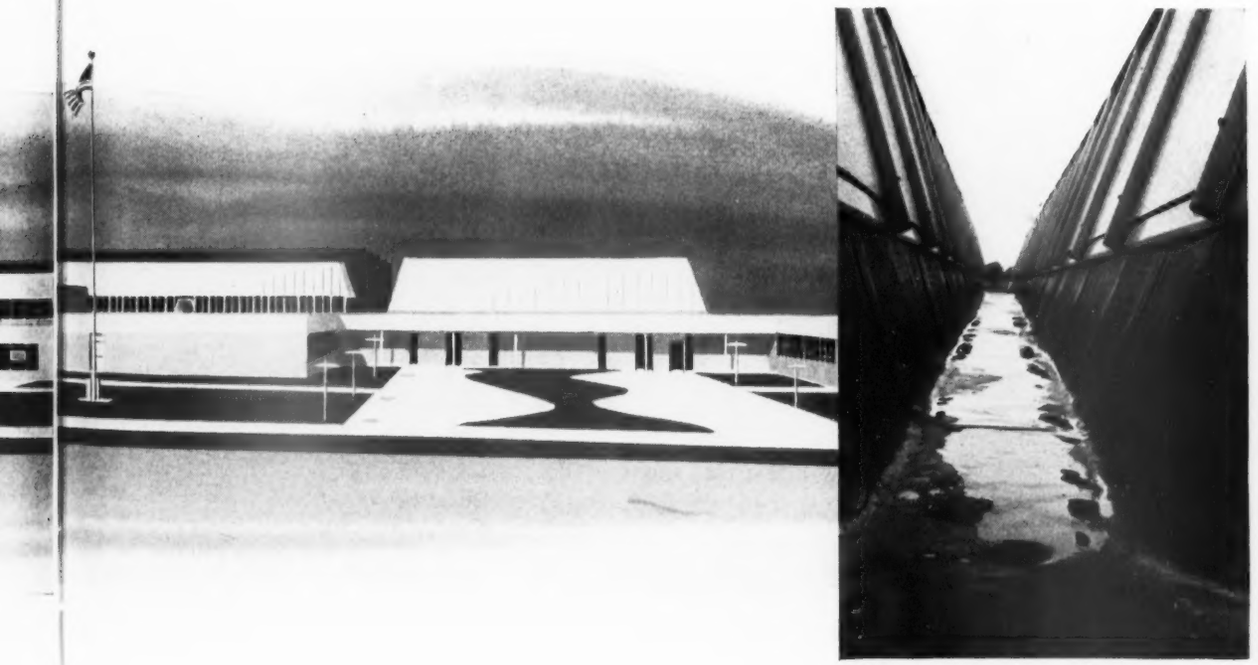
When other kinds of flashing won't last, or require costly preforming and fitting, Saraloy 400 can be your best answer. Even where other flashing *will* work, Saraloy 400 often works better, for longer.

Built-up roofs can be insulated quickly, economically, using Roofmate*. This Dow roof insulation board has a lightweight core of Styrofoam® enclosed in asphalt-laminated kraft paper.

Roofmate insulation is so light it can be handled easily, laid in a hurry. Because of high moisture resistance, it acts as *its own vapor barrier!*

Dow roofing materials and other building products not only ease designers' problems, but their cost of installation is low . . . even for unconventional designs. For information and data on Dow Building Products, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1503JF7.

*Trademark



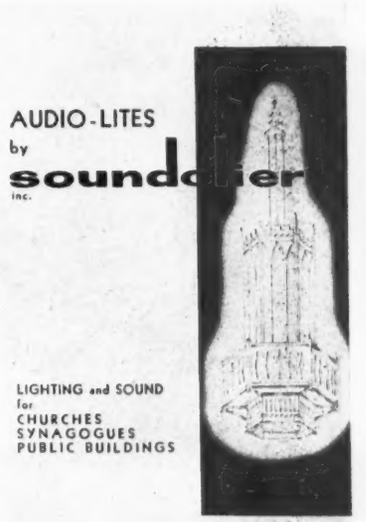
Saraloy 400 seals valleys permanently, at low installation cost.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

Circle 127 for further information

LITERATURE

allows architect to try any shade on lamps by spinning a disc.
AIA FILE NO. 31-F-23
MFR: LIGHTOLIER
Circle 325



CHURCH LIGHTING/SOUND

Manufacturer of lighting and sound equipment has just released a brochure illustrating a variety of company's products. Ornamental chandeliers with built-in sound sources are designed and catalogued. Brochure discusses acoustical problems imposed by high ceilings and the aesthetic problems imposed by church architecture and special public buildings. Over thirty original designs in traditional and contemporary style are presented.
AIA FILE NO. 35-A-4
MFR: SOUNDOLIER MANUFACTURING CO., INC.
Circle 326

LIGHTING/CEILING SYSTEMS

Literature describes a new line of extruded aluminum pendant lighting systems. Information on elimination of ballast hum, reduced air conditioning costs and integration of lighting with company's line of aluminum suspended ceiling system is provided. Descriptions of various aspects of the aluminum suspended system are also available.
AIA FILE NO. 31-F-23/17-A
MFR: LOK-PRODUCTS CO.
Circle 327

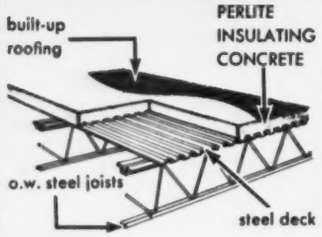
PERIMETER LIGHTING

Perimeter cornice fluorescent lighting fixtures are discussed in manufacturer's brochure. Applications, construction installation, and cross-section drawings explain commercial

CHECK THE ADVANTAGES OF

Perlite

INSULATING CONCRETE FOR ROOF DECKS



Here are only a few of the reasons why you should specify this modern, practical construction material on your next project.

Perlite Insulating Concrete

is lightweight, yet exceedingly strong where combined wide spans and high load carrying capacities are required.

Perlite Insulating Concrete

forms a fire safe permanent insulating roof deck that offers up to 20 times more Thermal insulation than ordinary concrete.

Perlite Insulating Concrete

bonds directly to galvanized metal and eliminates the necessity of a combustible bonding agent used under rigid insulation.

Perlite Insulating Concrete's

low dead load offers savings in structural steel. It may be job or transit mixed and poured monolithically on any kind of surface or pre-cast into panels or slabs.

For further information see Perlite Institute Concrete Aggregate Catalog A.I.A. File 3-D-3 & 37-B-2 in Sweet's 1961 Architectural File or write for catalog PI-7.

Information and data based upon independent research laboratory tests and ASTM specs.

Perlite INSTITUTE INC.

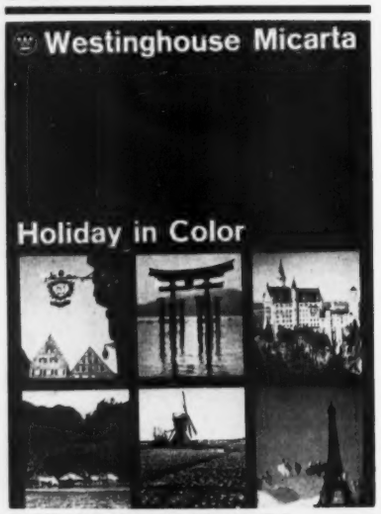
International Association of Perlite Producers
45 W. 45TH ST., NEW YORK 36, NEW YORK

Circle 128 for further information

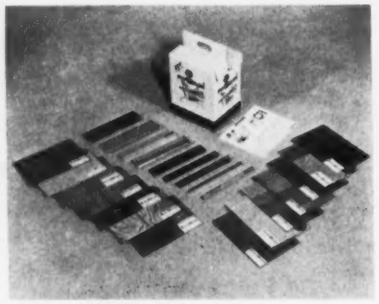
LITERATURE

applications. Various decorative panels are shown along with illustrations of finish, lighting adaptation, local codes, lighting intensity, humidity and other examples.
AIA FILE NO. 31-F-23
MFR: GOOD MANUFACTURING CO.
Circle 328

SIDING/PANELS



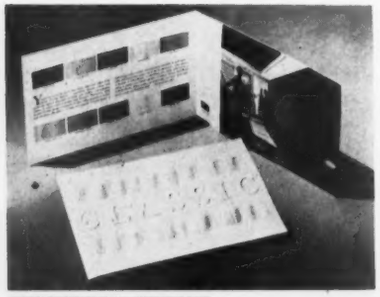
DECORATIVE LAMINATES
Colorful brochure displays company's line of decorative plastic laminates in 64 colors and patterns. Color chart includes all patterns including four new pastels recently introduced. Finishes available are gloss, furniture, satin or textured.
AIA FILE NO. 24-F
MFR: WESTINGHOUSE ELECTRIC CORP.
Circle 329



WALL PANELING KIT
Handy architectural kit contains 8"x11" samples of company's prefinished wall panels as factory-finished in 14 architect-decorator tones. Kit also includes samples of prefinished hardwood moldings. Specifications, illustrations, and descriptive literature complete the kit.
AIA FILE NO. 19-E
MFR: E. L. BRUCE CO., WELSH DIV.
Circle 330

LAMINATED SAFETY GLASS
New product bulletin that describes engineering features of a line of laminated architectural safety glass is available. Literature contains descriptive information on product's construction and the various sizes available. Line drawings show a comparison between product and clear glass as to light and heat transmission, reflection, absorption and reradiation. Percentage figures showing reduction of the sun's energy over clear glass are also supplied.
AIA FILE NO. 26-A-9
MFR: AMERADA GLASS CORP.
Circle 331

SCULPTURED FACED TILE
Line of manufacturer's sculptured structural ceramic tile is subject of a new booklet. Four patterns and colors are shown in typical application drawings. Latter part of brochure deals with how the patterns can be arranged in a wall for different effects depending on type of application. Typical specifications are included.
AIA FILE NO. 10-B
MFR: STARK CERAMICS, INC.
Circle 332



EXTERIOR SIDING
Brochure with sample swatches of a line of siding mainly intended for residential applications. Various properties including colors and texture are discussed.
AIA FILE NO. 19-D-3
MFR: NATIONAL GYPSUM CO.
Circle 333

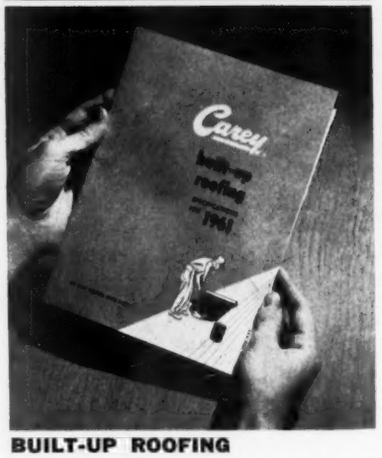
CONCRETE USES

CONCRETE PRODUCTION
Descriptions of manufacturer's water-reducing and air-entraining agent for concrete is covered in a new booklet. Various factors such as durability, permeability, bond strength, volume change, retardation, effective air and scale resistance are covered. Descriptions are based on reports emanating from various testing laboratories. Suggested specifications are included.
AIA FILE NO. 3-B-2
MFR: THE MASTER BUILDERS CO.
Circle 334

SCULPTURE IN CONCRETE
A comprehensive report on concreting for the new $15 million TWA Terminal, Idlewild Airport, New York City, is offered to architects and engineers in a new concrete performance report. Report explains in detail the extensive planning required for accurate concrete control in erecting this shell structure and the rigid concrete specifications which were met through use of company's product.
AIA FILE NO. 4-A
MFR: THE MASTER BUILDERS CO.
Circle 335

CEMENT BINDER
Literature explains virtues of a product which is a redispersible polyvinyl powder. According to bulletin, product is a good binder for commonly used commercial fillers. As explained in the bulletin, powder is designed for use in dry-mix products for joint cements for dry wall construction, spackling compounds, cement and cinder block fillers, etc. Specifications of the product, joint cement formulation, joint cement evaluation and test results are also given.
AIA FILE NO. 3-B-1
MFR: COLTON POLYMERS DEPT., AIR REDUCTION CHEMICAL & CARBIDE CO.
Circle 336

ROOFS/FLOORS



BUILT-UP ROOFING
Specification manual lists data and specifications of a line of built-up roofs. Brochure includes a selector guide, an explanation of the roofing line, and material available. Application information includes details on

reliable maintenance is easy with experienced

STA-CRETE

epoxy resins

Maintenance men specify **STA-CRETE** to solve hundreds of maintenance problems. Practically indestructible. **STRONGER THAN CONCRETE. STA-CRETE** epoxies are the solutions for repairing, resurfacing, patching, bonding, strengthening, water-proofing, and just plain wear and tear problems. Economical and easy to handle. Use only what you need; your supply will never deteriorate. Surface ready for heavy traffic overnight.

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Industry
Agriculture
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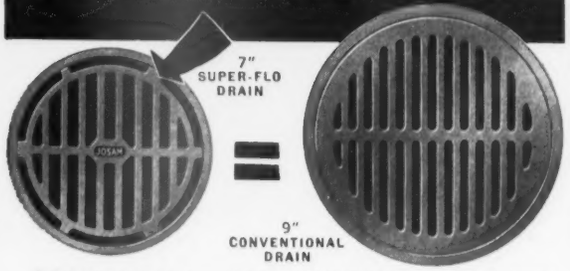
See your dealer or write

STA-CRETE, INC.
115 New Montgomery St.
San Francisco 5, Calif.

Circle 129 for further information

3 EXTRA ADVANTAGES WITH Josam SUPER-FLO® DRAINS



DRAIN FASTER • MORE SANITARY • COST LESS
than larger size conventional drains

Because of the perimeter slots in its top, a Super-Flo drain of a smaller size will drain as fast as a larger conventional drain. The inside surface of the drain body is constantly flushed clean. A 7" top Super-Flo drain can be used instead of the 9" top conventional drain with considerable savings. Write for literature.

JOSAM MANUFACTURING CO.
General Offices and Manufacturing Division • Michigan City, Ind.
REPRESENTATIVES IN ALL PRINCIPAL CITIES
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765 Folsom Street San Francisco 7, Calif.
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JOSAM PRODUCTS ARE SOLD THROUGH PLUMBING SUPPLY WHOLESALERS

Circle 130 for further information

LITERATURE

steep deck and dead level roofs, spray pond roofs, promenade tile roofs, insulation and joint sealing details.
AIA FILE NO. 12-B
MFR: THE PHILIP CAREY MANUFACTURING CO.
Circle 337

CUSTOM CORK FLOORING

Full color architect booklet explains a full line of cork flooring in light, medium, dark and mixed shadings. Varied design possibilities are illustrated along with applications shown in different style rooms. The long-wearing qualities recently added to the cork flooring with use of a finish of clear polyurethane are discussed.
AIA FILE NO. 23-G
MFR: KENTILE CORK FLOORS
Circle 338

INSULATING CONCRETE FLOORS

Specifications for vermiculite insulating concrete floors on grade, with or without radiant heating, have been issued. Folder covers mixing, placing, and curing of vermiculite concrete, as well as preparation of base and application of a sand concrete topping.
AIA FILE NO. 4-E-13
ASSN: VERMICULITE INSTITUTE
Circle 339

VINYL ASBESTOS FLOOR TILE

Sample swatches of all patterns in company's line of vinyl asbestos floor tile, including marbleized, dot, pearl, a mist pattern, a lace pattern and cork are reproduced in a new folder. Literature also includes material and installation data.
AIA FILE NO. 23-G
MFR: AMERICAN BILTRITE RUBBER CO.
Circle 340

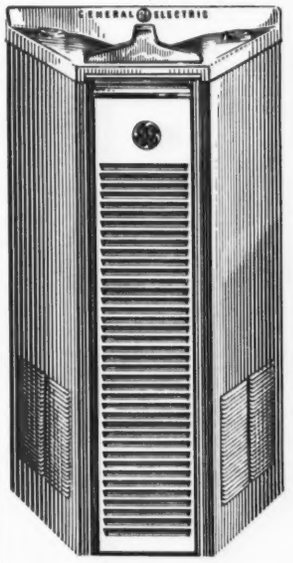
FREE-FORM ROOF COATINGS

Easily applied, highly adhesive coating for building facades and free form roofs, based on polyurethane, is the subject of a new brochure. Actual swatches of the coatings in color are included along with a discussion of blends and special colors.
AIA FILE NO. 25-B-39
MFR: BB CHEMICAL CO.
Circle 341

BUILT-UP ROOFING MANUAL

General requirements for built-up roofing including roof insulation, flat decks, steep decks, flashing systems and drainage and vent systems are the subject of a new brochure. Generously illustrated with 85 photographs and cross-section drawings.
AIA FILE NO. 12-B
MFR: BARRETT DIV., ALLIED CHEMICAL CORP.
Circle 342

NEW Space-Saving Shape in Water Coolers



GENERAL ELECTRIC'S MODERN, TRAPEZOID FLUSH-TO-WALL DESIGN

•

THREE-WAY APPROACH SAVES AISLE SPACE

•

WALL OR FLOOR MOUNTED & HOT-&-COLD MODELS

•

WRITE FOR:
Architects' Specifications and Complete Line Bulletin. Commercial Equipment Department, Section 761-18, General Electric Company, Chicago Heights, Ill.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Circle 131 for further information

Twin streams of **soft** aerated water quickly and gently bathe the eyes and wash away chemicals, particles or fumes dangerous to delicate eye tissues. **Surprisingly inexpensive.**

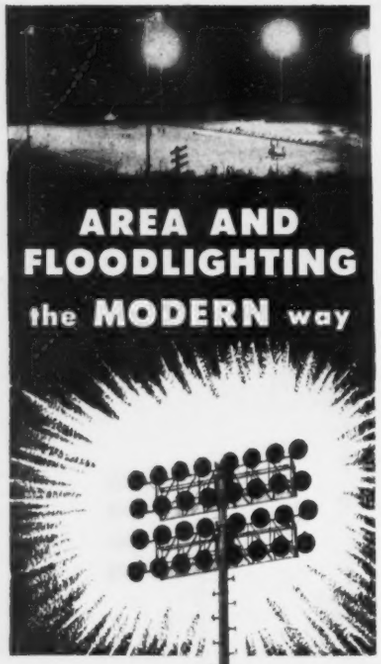
Soothes Eyestrain

Wonderful soothing treatment for eyestrain from motoring, close work, excessive reading, smog or glaring lights and excessive heat. Refreshing and exhilarating.

Write Dept. AN for Safety Booklet S-100

SPEAKMAN COMPANY
WILMINGTON 99, DELAWARE
In Canada write CUTHBERT-SPEAKMAN, MONTREAL 3, CANADA

Circle 132 for further information



TULITO

TAPERED STEEL LIGHTING TUBES

For
- Baseball Diamonds
- Football Fields
- Playgrounds
- Shopping Centers
- Truck Terminals
- Railroad Yards
- Race Tracks
- Radio and TV Towers
- Transmission Power Lines

Engineered for Permanence, Strength and Safety...
Designed to accommodate from 2 to 40 lights.
Streamlined to enhance the appearance of any lighted area.

MEYER MACHINE, INC.
P. O. Box 131
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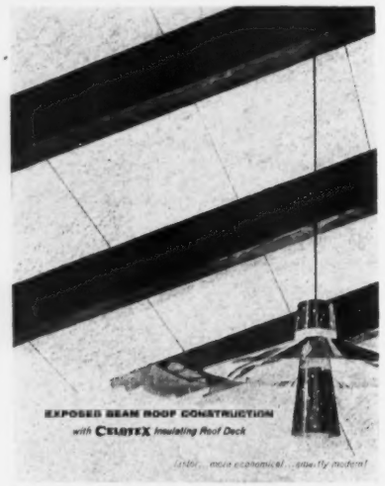
Circle 133 for further information

LITERATURE



ROOF DECK ECONOMICS

New brochure permits architects to compare local applied costs of fiberboard insulating roof deck against three other typical roof systems; pitched roof with vented attic space, flat roof, exposed beam roof without insulating roof deck. Brochure also lists average costs for the four systems in one major market area. Space is provided for architects to enter a detailed analysis of local material and labor costs for the four systems.

AIA FILE NO. 19-D
MFR: THE CELOTEX CORP.
Circle 343

PLASTIC ASPHALT FLOOR TILE

Recently published brochure features sample swatches of patterns in company's line of plastic asphalt floor tile. Installation and material data is also included.

AIA FILE NO. 23-G
MFR: AMERICAN BILTRITE RUBBER CO.
Circle 344

HVAC

CONDENSING UNITS

Facts and figures on a line of condensers and condensing units are subject of a new brochure. Properties of this particular brand of condensers are covered with various tables and descriptions.

AIA FILE NO. 31-H-1
MFR: YUBA-AIMCO DIV., YUBA CONSOLIDATED INDUSTRIES, INC.
Circle 345

AIR CONDITIONING BROCHURE

Brochure covering a line of air conditioners was published recently. A full product story on over 300 models is covered in the literature. These eleven basic lines are all detailed with photos of equipment, concise application and specification data. A portion of publication devotes itself to company's line of extended surface coils and a line of cooling towers.

AIA FILE NO. 30-A
MFR: DRAYER-HANSON DIV., HI-PRESS AIR CONDITIONING OF AMERICA, INC.
Circle 346

TROFFER LITERATURE

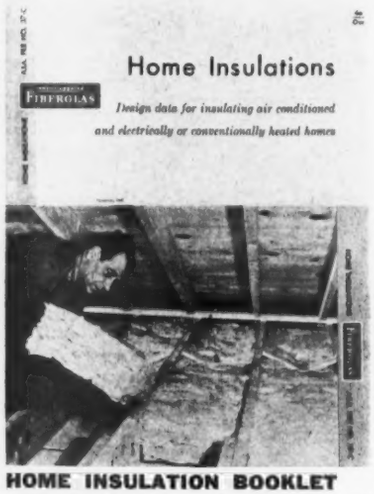
Brochure designed as a useful reference in predicting lighting levels and designing proper brightness balance with a line of modern troffers. A complete discussion of each of the models in a line of recessed troffers is supplemented with product photos, installation drawings and specifications. A partial list of famous installations rounds out brochure. (44 pp.)

AIA FILE NO. 31-F-23
MFR: GLOBE LIGHTING PRODUCTS CO.
Circle 347

ARCHITECTURAL AIR DIFFUSERS

Performance tables on continuous wall-to-wall ceiling mounted or wall mounted architectural straight line air diffusers features a new architect's manual. Complete application and selection data are also included. Also shown are six installation steps and typical specifications.

AIA FILE NO. 30-J
MFR: ANEMOSTAT CORP. OF AMERICA
Circle 348

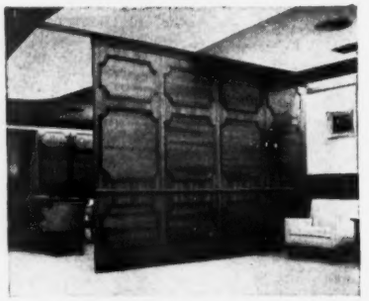

Home Insulations
FIBERGLAS
Design data for insulating air conditioned and electrically or conventionally heated homes

HOME INSULATION BOOKLET

A comprehensive reference manual on the subject of residential insulation has been produced for specific use by the residential architect. Booklet contains a broad range of design data for insulating air-conditioned and electrically or conventionally heated homes. Published for the first time for new methods of estimating heating and cooling equipment loads by use of the simplified "*R*" system, and a simplified method for estimating heating and cooling costs. Also included are recommended installa-

AirWall® PATENTED

PNEUMATIC PARTITIONS OFFER UNLIMITED DESIGN FLEXIBILITY



Airwalls installed in the Continental Assurance Company, Chicago, Illinois.

"AIRWALL" Pneumatic Partitions offer architects a completely new concept of design flexibility for interior walls. "AIRWALLS" provide a lightweight, completely portable wall that can be used anywhere to divide floor areas into useable rooms. No floor or ceiling tracks are required . . . "AIRWALLS" can be shifted at will . . . in a matter of minutes. Each panel is set in place and the Airseal is inflated to lock the panel in position . . . provides a tight seal at floor and ceiling levels. This tight seal plus "AIRWALL's" unique construction provides a sound control never before possible in a portable wall.

Individual panels are 36″ wide, heights to 12′...panels are constructed with tongue and groove for rigid, flush installation. Available in a wide variety of facing finishes. Applications are unlimited . . . ideal for Hotels, Restaurants, Offices, Funeral Parlors, Schools, Churches, Motels and Commercial Buildings.

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A SUBSIDIARY OF
RICHARDS-WILCOX MFG. CO.
AURORA, ILLINOIS

Circle 134 for further information

LITERATURE

tion practices and advance planning ideas which will cut construction costs.
AIA FILE NO. 37-C
MFR: OWENS-CORNING FIBERGLAS CORP.
Circle 349

HVAC LOAD CALCULATOR
A simplified method of heating and cooling load calculating whereby such data as glass, shading, and latitude factors are combined in easy-to-read tabular form has been developed. There is a table for each of the five national geographic zones with data on single and double thickness of glass. In addition to various types of window glass, similar tables cover glass block, walls, ceilings, floors, partitions, people, appliances and ventilation air. (94 pp.)
AIA FILE NO. 30-A
MFR: ARKLA AIR CONDITIONING CORP.
Circle 350

MISCELLANY

PNEUMATIC TUBES
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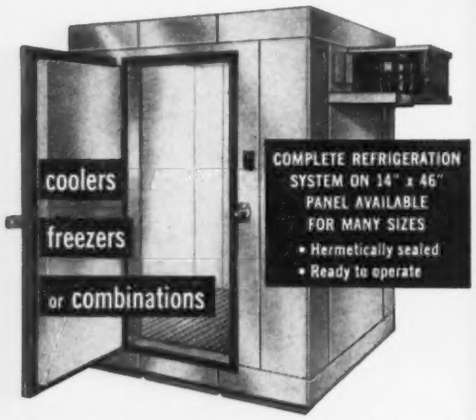

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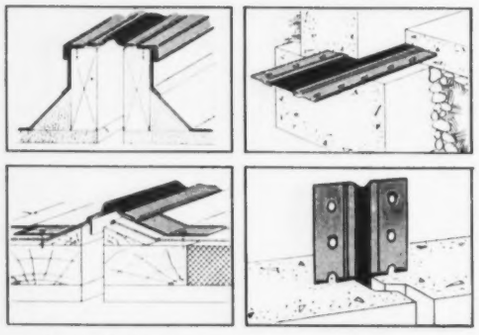

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LITERATURE

ing with a basic pneumatic tube system type. Each unit is illustrated and operations are detailed. Last section of manual is directed especially to architects and engineers and deals with components of each type of system. This section is well illustrated with dimensioned architectural drawings. (40 pp.)

AIA FILE NO. 35-H-21

MFR: LAMSON CORP.

Circle 351

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A variety of economical wiring devices especially developed for low cost residential market is pictured and described in a new brochure. Including switches, outlets, receptacle covers, wall plates, and lampholders, manual gives package weights and price per 100 on all items in this line. Descriptions of each unit list colors available as well as other features. Photographs are used to illustrate devices. (8 pp.)

AIA FILE NO. 31-C-71

MFR: BRYANT ELECTRIC CO.

Circle 352

WASHROOM DESIGN BOOKLET

A new brochure entitled "New Directions in Contemporary Washroom Design" is now available. Included are descriptions, pictures, and dimensions of washfountains and group shower equipment. Also included is a composite tabulation on minimum practical clearances for group washfountain equipment.

AIA FILE NO. 29-H-3

MFR: BRADLEY WASHFOUNTAIN CO.

Circle 353

MINERAL FIBER PRODUCTS

Brochure explains manufacturer's line of mineral fiber products in use as blaze-shields, sound-shields and heat-shields. Fireproofing, acoustical treatment and thermal insulation properties are discussed with application photos, cross-section drawings and graphs. A list of typical installations in well-known modern structures completes the brochure.

AIA FILE NOS. 21-C-1, 37-B, & 39-B-1

MFR: COLUMBIA ACOUSTICS & FIREPROOFING CO.

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SHADES AND DRAPERIES

New booklet features individualizing of each room with a line of draperies, shades and floor screens. Many of the patterns carried in this line are shown in interior applications for bedrooms, living rooms and kitchens. A choice of 16 colors and three patterns is shown along with custom styling, installation, maintenance and decorator consultant

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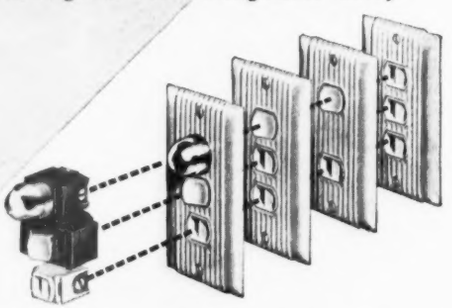

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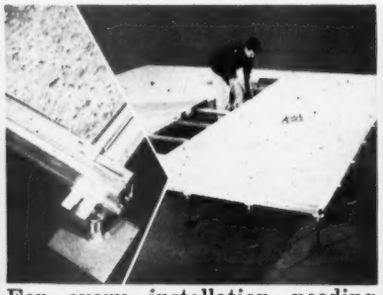

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service. Design cross-section helps explain manufacture of product.
AIA FILE NO. 28-D
MFR: AEROSHADE CO., DIV. OF CONSOLIDATED GENERAL PRODUCTS, INC.
Circle 355

FRAMING DEVICES

A major producer of rough hardware is offering architects and engineers a new brochure on its line of timber connectors, framing devices and installation tools. Illustrated with detailed photographs and line diagrams new publication is designed to assist in specifying use of these products. Of particular help are tables of safe working loads on various types of these framing devices. (12 pp.)
AIA FILE NO. 19-B
MFR: TIMBER ENGINEERING CO.
Circle 356

PROPERTIES OF FELT

Brochure features a ready reference index which alphabetically lists hundreds of applications of industrial felts with the proper type to use. Tables are listed under either roll felts or sheet felts and include most data pertinent to construction applications. (16 pp.)
AIA FILE NO. 12-A-2
MFR: CONTINENTAL FELT CO.
Circle 357

ELECTRICAL SUPPORTS

A system of raceways and electrical supports is subject of a new brochure. More than 150 photos and drawings illustrate a product line, with almost as many graphs and tables giving such information as beam loads and conduit dimensions and weights.
AIA FILE NO. 31-C-62
MFR: POWER STRUT DIV., VAN HUFFEL PRODUCTS, INC.
Circle 358

BATHROOM ACCESSORIES

Advice on specifying bathroom accessories is offered in a new brochure. Mirrors, cabinets, towel racks and chains, soap dishes and various other items are shown.
A|A FILE NO. 29-J
MFR: THE PHILIP CAREY MANUFACTURING CO.
Circle 359

EXPANDED METALS

Booklet explains company's line of expanded metals for industrial design, maintenance and safety. A total of 121 photographs and illustrations shows patterns and recommended applications.
AIA FILE NO. 14
MFR: UNITED STATES GYPSUM CO.
Circle 360

DIGEST:31

RIGID URETHANE FOAMS

by H. S. Smith*

The use of plastic foams by all sectors of the construction industry has increased at a rapid rate for the past ten years. New applications are being constantly discovered by architects, engineers and builders as they become familiar with foam properties. Rigid urethane foams are the most recent, significant addition to this branch of the plastics family. They have properties which, if correctly understood and applied, can improve the quality of the buildings of tomorrow without increased costs.

The words "urethane polymers" represent an extremely versatile family of materials. They are thermosetting plastics whose chemical make-up can be widely varied to produce adhesives, two-component and solvent-based coatings systems, elastomers and low density foams. The versatility of urethane chemistry is such that within any of these product areas a wide variety of specific materials can be produced. For example, urethane foams can range from completely flexible systems designed for comfort cushioning to very rigid low density products for insulation and panel cores.

Family background

Rigid closed-cell urethane foams are just beginning to take their place among other plastic foams for application in the building industry. How does this new member of the plastic foam family compare with older, more familiar materials, such as expanded polystyrene, polyethylene and polyvinyl chloride? There are two basic differences: first, the urethane foams are thermoset plastics while polystyrene, polyethylene and polyvinyl chloride foams are thermoplastics. This characteristic results in much greater heat resistance, solvent resistance and maintenance of cell structure or "integrity" (absence of shrinkage and collapse when heated). Secondly, the chemistry of rigid urethane foam formation is such as to permit tailoring to a much greater extent than can be done with most thermoplastic foams to meet the engineering requirements of given applications.

The important properties of plastic foams are determined by three factors: *base plastic, type of cell structure,* and *the expanding (blowing) agent* if it remains captive within the foam cells. These factors, if wisely combined by the foam producer, will result in a rigid urethane foam which is acceptable for the applications previously mentioned. Properties representative of such foams are shown in *Table 1* at the right.

Cross linking

These rigid urethane foams, which are acceptable for construction applications, are of a highly crosslinked nature. This means that the molecular chains are bound together to form a tightly knit three dimensional gridwork. This extremely important factor makes it possible for rigid urethane foams to withstand temperatures up to 250° F, possess excellent solvent resistance, and good mechanical strengths.

Costs can be lowered by reducing the degree of crosslinking, and if this is done the plastic foam can still be classed as a rigid urethane type; however, its properties will not be nearly as good as those reported in *Table 1*. Only those rigid urethane foams which contain the necessary high degree of crosslinking to obtain the properties shown in *Table 1* should be considered for most construction applications.

The density of any plastic foam is a compromise between properties and economic factors. At the present time the minimum density found to provide acceptable properties in a rigid urethane foam is in the range of 1.8 lbs./cu. ft. The present article is limited to these relatively low density foams, since use of higher density materials is severely limited by higher costs.

Water

The base plastic and cell structure combine to determine the water resistance of a plastic foam. This characteristic is of prime importance in the construction industry, where it is necessary to eliminate the possibility of water absorption or the condensation of water vapor. Acceptable urethane plastics are *hydrophobic;* thus closed celled foams of these plastics will not absorb water as do fibrous *hydrophilic* materials. The foam, however, must be closed celled to be successful in this respect. The properties shown in *Table 1* are only produced with unicellular foams and, with proper control, foam manufacturers can produce materials with very few open cells.

The highly crosslinked nature of acceptable urethane plastics and their closed cells join together to retain the blowing agent within the foam cells. Since these blowing agents have very low thermal conductivities they will be retained to produce foams with correspondingly excellent insulation properties. It should be stressed that the agents must have a low thermal conductivity and also be held essentially captive within the cells to obtain this advantage. The low thermal conductivity of such foams permits designers to obtain equivalent insulation with a 40 to 50 per cent thickness reduction from presently available insulations.

Acoustical properties

Because of the low density stiffness and unicellular structure of rigid urethane foams, these are not efficient absorbers of sound waves when used alone. However, they can be combined with high density facings such as cement mortar or plaster to develop acceptable sound absorption properties. *(Continued on page 54)*

TABLE 1
Representative Properties of Low Thermal Conductivity Rigid Urethane Foams Acceptable for Construction Applications

PROPERTY	TEST METHOD	UNITS	VALUE
Density	Dow CS-PSFC	lbs/cu.ft.	1.8 to 2.3
Moisture vapor transmission rate	ASTM-E96-53T	perm. inches	<3
Heat distortion point	Dow CS-PSF-H	°F	>230
Water absorption	Dow CS-PSF-E	% by volume	<2.5
Dimensional stability	21 days, 140°F 100% relative humidity	% change volume	<10
Compressive strength	ASTM D1621	psi	>20
Compressive modulus	ASTM D1621	psi	>700
Shear strength	ASTM C273-53	psi	>20
Shear modulus	ASTM C273-53	psi	>300
Long term thermal conductivity	Dow CS-PSF-D (aged at 140°F)	BTU. in / °F. hr. sq ft	0.17

Mr. Smith is with Dow Chemical Company, Midland, Mich., as a Customer Service Engineer in the Plastics Technical Service.

DIGEST:31

The surface of all rigid urethane will be degraded by continued exposure to sunlight, or to artificial light with a high ultraviolet content. Boards stored on the job should be shielded from direct rays of the sun and if the foam is to be left in an exposed location, it should be coated with a protective finish. Most protective paints will eliminate this surface degradation problem, and a wide selection can be used because of the excellent solvent resistance of rigid urethane foams.

Fire

Urethane foams in general have been difficult to produce in flame retardant forms without sacrificing the properties required for construction applications. This situation is changing and foams with adequate flame retardance are now becoming available. Acceptable rigid urethane foams do not melt during normal combustion, thus avoiding problems associated with a burning, molten material.

The properties of acceptable rigid urethane foams in *Table 1* indicate the trend of higher performance which permits their use in new applications; their use in conventional plastic foam applications will also prove profitable.

Uses

The insulation of roofs is probably the most efficient method of reducing heating and air conditioning costs. A rigid insulation material is required which will be highly water resistant, so that the thermal insulation properties will be maintained throughout the life of the structure. Rigid urethane foams combine the required water resistance with an added ability to withstand the application of hot bitumen commonly used in roof construction. The non-melting aspect of highly crosslinked urethane foams is a definite advantage in case of fire. Also their excellent solvent resistance permits the use of most cold-setting adhesives. A modern air conditioned structure recently completed in Houston, Texas has a roof of precast concrete sections, insulated with one inch of rigid urethane foam, and a conventional built-up roof. This experimental application was simple to install and has proved very satisfactory.

Sandwich panels

Rigid urethane foams are recommended for sandwich panel cores. Their high heat distortion point provides a wide margin of safety for solar heat build-up. Their physical properties will, in conjunction with suitable skins, provide rigid lightweight sandwich panels adequate for many structural uses. Their lower thermal conductivity allows the designer to reduce thickness, resulting in shipping and space economies. Their excellent solvent resistance permits the use of many types of adhesives.

Comfort insulation

Comfort insulation applications require materials that have long term low thermal conductivity; this is one of the prime properties of rigid urethane foams. Furthermore, the economies in thickness which may be developed are often very advantageous in electric heating systems which require low heat loss for economic operation.

Cost and conductivity

The price of rigid urethane foams per unit volume is approximately twice that of other competitive materials. However, when calculated on an insulation basis the cost of rigid urethane foam is competitive for many applications due to the correspondingly lower thermal conductivity. Because of the interdependence of cost and thermal conductivity this important property bears further investigation. Initially closed-cell rigid urethane foams have a thermal conductivity in the range of 0.10 to 0.13*. However, tests by Dow Chemical on many foam systems have shown conclusively that when the material is exposed to air, the thermal conductivity will rise and then approach a plateau which can be considered as a design value for most practical purposes.

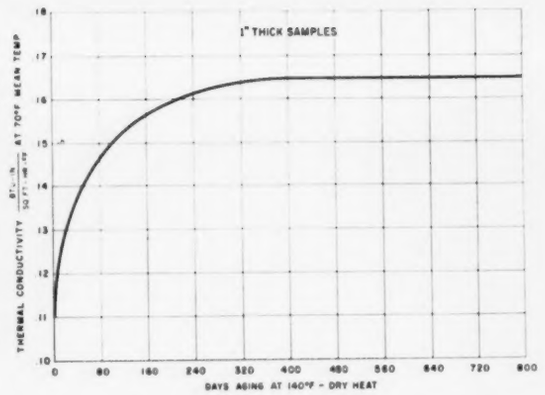

Figure 1. Typical curve for thermal conductivity vs. time

The actual aging process is shown graphically in *Figure 1*. The data is representative of many test samples and demonstrates close correlation with the theoretical values.

The minimum long term design thermal conductivity for an acceptable rigid urethane foam from both theoretical and practical criteria is 0.17 BTU-inches/hr.sq.ft. °F at 70° mean temperature. This figure combined with the material price should always be used for economic evaluation of rigid urethane foams.

Manufacture and installation

Rigid urethane foams are manufactured by mixing two or more liquid component systems in exactly controlled ratios. A blowing agent consisting of halogenated hydrocarbon similar to that used in many household aerosol spray bombs is now most commonly used to expand the foam. Because rigid urethane foam is formed from liquids many different production and installation techniques are possible. For example, boardstock can be produced in large sizes such as 4' by 8' in almost any thickness. These boards can be used with present construction methods in any of the applications which have been considered, without any toxic hazards.

Rigid urethane foams may be foamed *in situ* as well as sprayed with special equipment. These techniques often provide considerable savings in labor and scrap losses since almost no cutting or fitting is required. Also the foam acts as its own adhesive which is important in the production of sandwich panels and similar applications. These techniques have the disadvantage that control is quite difficult, especially under "on site" conditions. If the foam produced is substandard the assembly must be scrapped or the foam must be chipped away and a new layer applied. Also, a special compound always present in one of the reactants is toxic until the foaming reaction has terminated. Therefore, personnel must be completely protected and all work of other trades within the work area halted.

There are special advantages to be gained by each of the three installation methods (boardstock, foamed *in situ*, and sprayed), and it is certain that one will not be suitable in all cases. However, at the present time, use of rigid urethane boardstock eliminates the hazards and control problems of the more exotic foam-in-place and spray techniques. As these new methods are developed their use will no doubt increase.

* *All thermal conductivities are at 70° F mean temperature. Units are:* $\frac{BTU.in}{°F.hr.sq\ ft}$

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DOCUMENTS

The documents listed below are available through the associations and agencies cited. All requests should be directed accordingly.

Manufacturing Chemists' Assn., 1825 Connecticut Ave., N. W. Washington 9, D. C.

A Study of Fire Safety Aspects of Plastics in Building Construction, *Abridged Report. 1960. 51 pp. No charge.*

This report was prepared by the Southwest Research Institute, San Antonio, and is based on a research project conducted there by the Building Research Section, Department of Structural Research.

Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Publications of the National Bureau of Standards July, 1957, to June 30, 1960 *compiled by Betty L. Arnold, NBS Miscellaneous Publications 240, 1961. 391 pp. $2.25.*
Presents a complete list of all National Bureau of Standards publications issued between July 1, 1957, and June 30, 1960. Also includes papers published by members of the bureau staff in outside journals from 1950 through 1959. Complete author and subject indexes are provided.

American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

1961 List of ASTM Publications, *April 1961. 62 pp. No charge.*
Describes the symposiums, manuals, special publications, indexes, compilation of standards, charts, reference photographs and reports published by the society through the years. More than 300 items are fully described, 40 of which are new and not previously listed.

Kelm Manufacturing Co., Route 2, Coloma, Mich.

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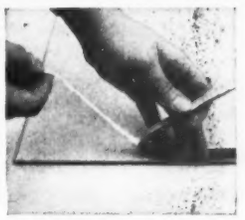

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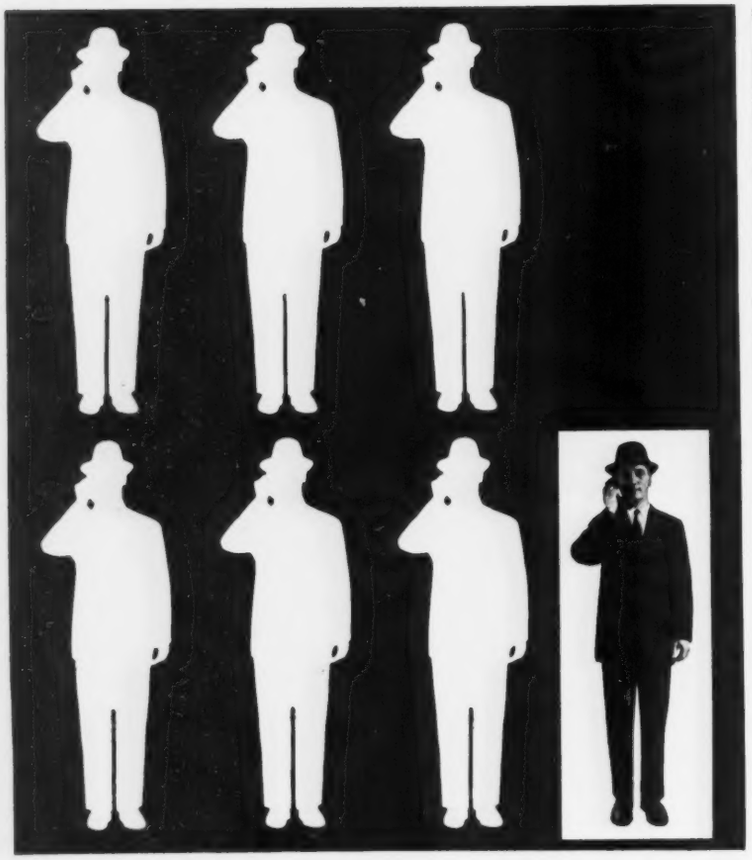

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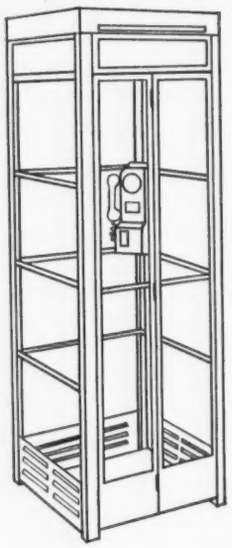

ALCOA ALUMINUM

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BOOKS

The Architecture of America *A Social and Cultural History by John Burchard and Albert Bush-Brown. Boston: Little, Brown and Co., The Atlantic Monthly Press, 1961. 595 pp. $15.00.*

*by Ralph R. Drury AIA**

In the prologue of this big book, the authors remark that: "In times of transition architectural leadership is possible; in frozen times it is not." Yet its pages present 360 years of relentless transition without a trace of real architectural leadership. Looking deeply into the stewpot of American architecture, knowing that they will not find what they seek, the authors name all the carrots, potatoes, and occasional pieces of meat. The result is a giant product of the remarkable insight and scholarship of Dean Burchard and Professor Bush-Brown, both of MIT.

The story begins with the long, slow turn toward independence. The European traditions, sensitively modified by American climate and materials, were later rejected by post-colonials. Seeing classic forms as the symbols of democracy these early leaders envisioned a whole American architecture in these terms. They were quickly challenged by those who thought that village life, and the worship of nature, which seemed to them the unique qualities of the new country, were best served by quiet forms, especially as those forms were gothic.

But by the year 1860 the ardor and freshness of both views were dying under the dirty breath of the industrial revolution. Two new attitudes arose: the right to carry on business in any way that would guarantee profit, and the complete separation of art and industry. A rose tinted grime was laid upon the soft and quiet landscape. The industrialist seldom admitted the source of his prosperity in collecting art, which he associated with fantasy history.

And this white-front-dirty-back posture remained the American way until the forces of reform came pressing across the Atlantic in the 1920's and 1930's. The great native voices, especially that of Wright, remained unheard, and the prophets of Europe were left to clear the land of false history and put to use raw material of the industrial nation.

But in removing the false face of "proper" taste, the new, whole-cloth architecture was soon the victim of the old business code. A jumble of economically profitable fads danced in circle with the few real performers of modern architecture. Crass exploitation and failure to recognize new forces, especially the automobile, brought deep sickness to the American city. Confused by the complexity of ordering space age forces, the architect remains torn by the simultaneous impulses to get with it and to get away from it.

This book is the reluctant catalogue of lost opportunities. Never failing to cite an instance, regardless of the protest it might cause, the authors stick close to their conviction that American architecture must quickly profit from its many mistakes if it is to avert another, and perhaps mortal, failure. Reasonable criticism can be made of the book's lack of humor and its glib groupings, and of the authors' occasional failure to get off the horse to watch the race. Nevertheless, it is an important book, coming at a critical moment, sponsored by an awakening American Institute of Architects, and written by bold and articulate men.

*Mr. Drury is assistant professor of architecture at Carnegie Institute of Technology.

Plastics as Building Construction Materials *prepared by graduates of the Harvard Graduate School of Business Administration. Belmont, Mass.: Structural Plastics Associates, 1960. 129 pp. $18.50.*

Covers such topics as: applicability of plastics to building construction; terminology and standards problems; building codes; trends affecting the acceptance of plastics as building materials; manufacturing and construction problems; and cost analysis. The appendix lists authorities on various aspects of the use of plastics in building, and the bibliography offers an extensive list of reference material.

The Construction of Gothic Cathedrals *by John Fitchen. New York: Oxford University Press, 1961. 344 pp., illus. $10.10.*

A scholarly approach is found in this study of how the Gothic cathedrals were erected. The author treats systematically the entire erectional process, including the building equipment and falsework requirements that had to be provided or met, the actual operations undertaken, and the sequence of these operations, as specifically as they can be deduced.

Building for the Aged *edited by F.H.J. Nierstrasz, of Functional Research Department, Bouwcentrum, Rotterdam. Princeton, N.J.: Elsevier Publishing Co. and D. Van Nostrand Co., Inc., 1961. 187 pp., 5 tables. Approx. $12.00.*

NAMES

WAYNE F. KOPPES AIA. A flippant toastmaster once defined a consultant as a man who tells one person what to do and the other what not to do, and maybe, with all qualifications removed, this is a true definition of the role played by Wayne F. Koppes AIA.

Clay

In the role of consultant to manufacturers supplying products to architects, there are few, if any, who can match Koppes for experience and respect in the industry. As one manufacturer so candidly put it: "If Koppes says leave it alone, believe me, we *leave* it alone."

This soft-spoken, reticent man from Basking Ridge, New Jersey, first turned to consulting in the mid-1940's after teaching at Rensselaer Polytechnic Institute since 1932. He received his A.B. in Architecture at Carnegie Institute of Technology and his M.Arch. at MIT.

While his friends and associates cite his quiet nature, they also warn you of his tenacity and unquestionable authority in discussing a broad technical range of building systems and techniques. His is a name often dropped in the field of product research and development, and never without a ring of respect.

One of the latest, and perhaps most significant of Koppes' contributions to architecture is the widely recognized *Metal Curtain Wall Manual.* The *Manual* was prepared under his guidance as architectural consultant to the Metal Curtain Wall division of the National Association of Architectural Metal Manufacturers, a post he still holds.

When the idea for the *Manual* was first formed, factual information on metal curtain walls was scarce. Nowadays, architects need only consult *Koppes' Manual,* as it is often called, to find a solution to most metal curtain wall problems.

Wayne Koppes feels deeply about his role as architectural consultant. Today, looking back over a decade-and-a-half as architectural consultant to the armed forces, leading manufacturers and numerous trade associations, Koppes feels that architects and manufacturers still need to work closer together.

To accomplish this closer relationship, one obvious answer is the consultant. Many manufacturers cannot afford a large architectural staff to work out technical requirements in, for example, metal curtain walls. This is where Koppes and his *Manual* can step in. In addition, architectural consultants are needed as experts called in to discuss specific problems.

"This age of science," Koppes has said, "develops materials and usage faster than we can become acquainted with them. More architectural students should be concerned with the research and development aspect of profession."

Koppes feels that more architectural students must also consider the role of consultant as a service, in perhaps much the same way as some physicians devote time to medical research.

Wayne F. Koppes is considered by many to be a pioneer in the role of architectural consultant. The term "pioneer," some may question. There is general agreement, however, that Koppes has vastly improved and broadened the area of understanding that must exist between supplier and architect so that each may benefit from the other's experience and knowledge. *CKR*

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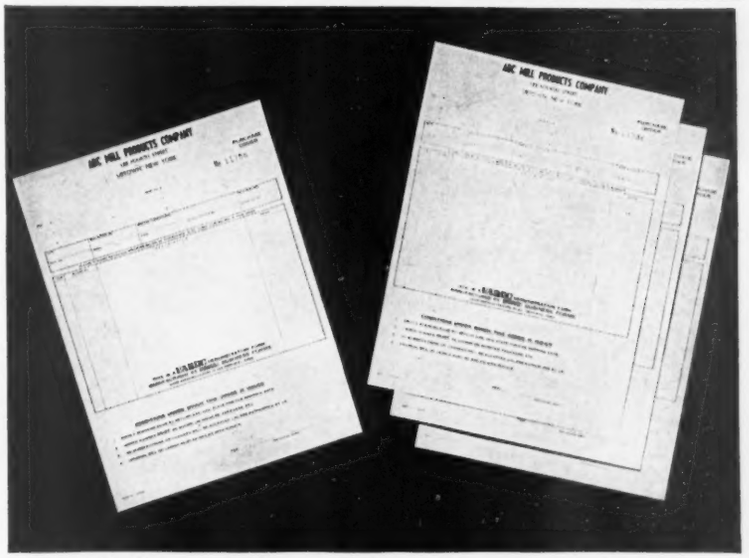

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ABSTRACTS

Fielding a team

The volume of building construction being erected today without benefit of an architect is a source of serious concern to the profession. A client requires of an architect proficiency in many fields demanding specialized knowledge. The importance of providing such services is stressed in the following excerpts from a recent address to the Construction Specifications Institute by AIA president Philip Will, Jr. FAIA.

". . . I know of no law which says that our traditional ways must be followed; that architects, planners or engineers must survive in private practice; that combines of vast capital resources cannot hire the salaried hands and package the job of creating whole cities; or that government cannot create more bureaus to provide whatever services and products an impatient public may demand. . . .

"The work to be done is so overwhelming that all existing skills will be tested to their limits and new disciplines, not heretofore involved, will be needed. New design teams will be formed which may well add to architecture and engineering such specialists as geographers, demographers, human ecologists, land economists, statisticians, psychologists, artists and even poets.

"Note that to describe such a group of specialists, I used the word 'team.' For no matter how many tears we shed or how we may sentimentalize the all-purpose genius of the one man office, architecture has become a team sport. When we fail to field a full team we simply lose the game. In fact, we disqualify ourselves even before the game begins. . . ."

New York or Venice?

A city in the throes of a building boom invariably faces the dilemma of deciding which existing buildings can be given over to the wreckers and which should be preserved. James Felt, chairman of the city's Planning Commission presented some of his own thinking on the subject in a recent talk before the New York Municipal Arts Society, from which the following is an excerpt.

". . . In World War II, the allied armed forces set up various Monuments, Fine Arts and Archives divisions in order to spare art treasures from the consequences of war. The fact that most of our art works survived is testimony to the wisdom of such a plan. How ironic it is that we have no plan to protect our architectural and historic landmarks from becoming casualties of a peacetime real estate market. . . ."

EDITORIAL

BLUEPRINTS AND THE DISHWASHER. The decision of the Attorney General of California to start action against "price-fixing" in the professions ought to make all architects and engineers sit up with alarm and take notice. If the A.G.'s trustbusting foot is once permanently lodged in the professional door, present fee cutting practices, however bad, will pale in retrospect.

At the risk of flaying what we always thought was a dead horse we wish to re-establish our amazement at the confusion of values revealed in the equating of price-fixing in an industry with "price-fixing" in a profession. If manufacturer A gets together with manufacturer B and they both decide to sell their dishwashers for $200 apiece, the public would be entitled to a reasonable doubt as to whether it is getting its money's-worth and whether the law of supply and demand is being given a fair run.

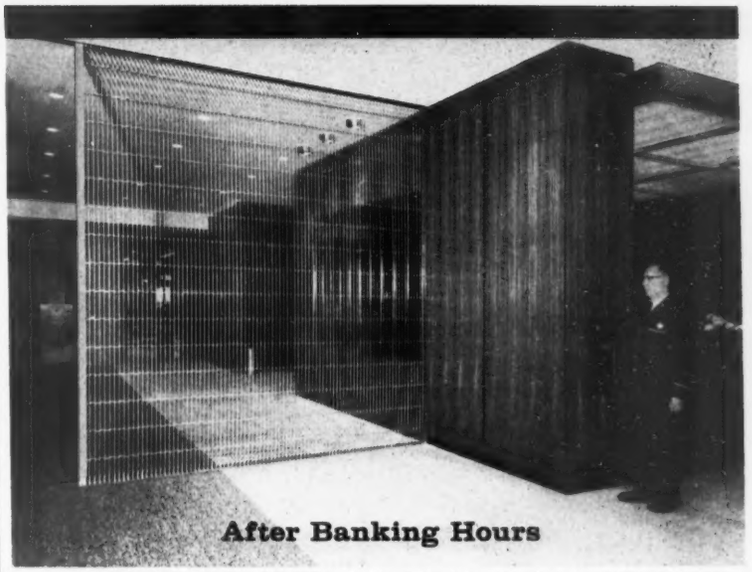
But the architect and the consulting engineer are not in the market with a dishwasher. They provide—and this has been stated so often that we wince at repeating it—a *service*. Now a service includes a great many aspects—consultation on site selection, preliminary and final drawings and specifications, supervision of construction, to name only a few. For an architect and an engineer to be able to devote the necessary attention to each client's problem, he needs time, draftsmen and a plant. These, with some minor variations, cost about the same whatever the circumstances. A widely experienced and respected professional may—and perhaps should—put a higher valuation on his own time. But there are certain rock bottom requirements which even the greenest professionals have to meet. Accordingly, and knowing temptation in a competitive world to be what it is, professional organizations have set up fee schedules. These establish from experience fees which are only cut at the risk of inadequate service.

To suggest that this procedure—which protects the interests of clients—actually undermines their interests is to have an entirely unrealistic view of an architect's and engineer's method of operation.

We can go further. Let us assume that suggested fee schedules are outlawed in California. In some cases it will make next to no difference: we would be fooling ourselves if we thought that no one ever cuts fees. But if the atmosphere is created in California—or in any other state which succumbs to the trust-busting virus—where the best bargain in engineers' or architects' services is obtained by shopping around until an engineer is found who charges less than all the other engineers: then the status and quality of service is likely to be degraded to the point where the state will discover that the only solution *is* to establish fee schedules, if only in self-protection.

One newspaper story, in describing the State as having "broken up an asserted free-rigging arrangement among an association of surveyors and civil engineers" states that California thus "already has a partial win to its credit." To which we say in all humility that a win it may be, but that it is hardly to its credit. A blueprint is not a dishwasher.

SAK



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25-28 INDUSTRIAL BUILDING EXPOSITION & CONGRESS: New York Coliseum, New York City.

27-30 NEW YORK STATE ASSN. OF ARCHITECTS: annual meeting and convention, Saranac Inn, Upper Saranac Lake, N. Y.

OCT. 6 SEVENTH ARCHITECTS' TOUR OF JAPAN: 24-day tour. For further information contact: Kenneth M. Nishimoto, AIA, 263 South Los Robles Ave., Pasadena, Calif.

16-20 NATIONAL SAFETY COUNCIL: annual convention, Chicago, Ill.

18-22 CALIFORNIA COUNCIL AIA: annual convention, Coronado, Calif.

NOV. 1-3 AMERICAN CONCRETE INSTITUTE: 14th regional meeting, Dinkler-Tutwiler Hotel, Birmingham, Ala.

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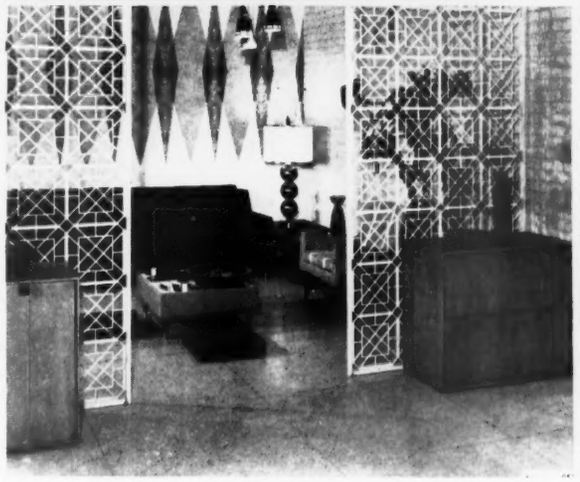
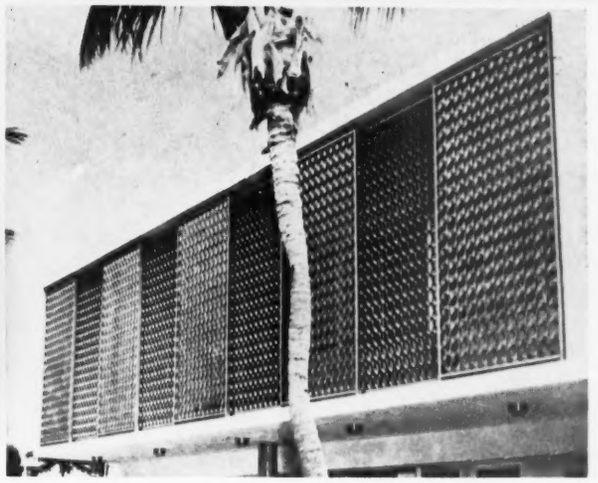

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